CollegeBoard

SAT® SUITE OF ASSESSMENTS

Alignment to Texas Standards

COLLEGE BOARD AND TEXAS

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Executive Summary

This report details College Board's study of the alignment between the Texas CCRS and TEKS and the digital SAT® Suite of Assessments. Though not designed to align to any single set of academic content standards, the digital SAT Suite tests are firmly grounded in the same sorts of high-quality evidence used by states and others to develop their college and career readiness standards, meaning that states such as Texas may employ the tests as valid, reliable, and fair assessments of their students' attainment of key postsecondary prerequisites.

The key features of the digital SAT Suite's Reading and Writing section are

- the use of a specified range of text complexity consistent with college and workforce training requirements;
- an emphasis on close reading and use of evidence, both textual and quantitative;
- the inclusion of data and informational graphics, which students must analyze in conjunction with text;
- a focus on the use and meaning of high-utility words and phrases in context;
- attention to a core set of important Standard English conventions and to effective written expression more generally; and
- the requirement that students work and demonstrate facility with texts across a wide range of disciplines, including literature, history/social studies, the humanities, and science.

The key features of the digital SAT Suite's Math section are

- a strong focus on the content that matters most for college and career readiness and success;
- an emphasis on rich applied problems in real-life settings in which the use of mathematical practices is integrated with the content;
- a balance of fluency, conceptual understanding, and application items within and across all content topics; and
- an emphasis on problem-solving and data analysis.

Based on a thorough review of the Texas College and Career Readiness Standards (CCRS) and Texas Essential Knowledge and Skills (TEKS), we find that the digital SAT Suite **strongly aligns**

and thereby supports students' progress toward educational and workplace success.[1] The following table provides detail by program and grade level/course:

Texas CCRS and TEKS	College Board Assessment	Degree of Alignment
Grade 8 English Language Arts and Reading	PSAT 8/9	Strong
English I	PSAT 8/9	Strong
English II	PSAT/NMSQT and PSAT 10	Strong
English III	PSAT/NMSQT and PSAT 10 and SAT	Strong
English IV	SAT	Strong
CCRS for English / Language Arts	SAT	Strong
Grade 8 Mathematics	PSAT 8/9	Strong
Algebra I	SAT Suite	Strong
Geometry	SAT Suite	Strong
Algebra II	PSAT/NMSQT and PSAT 10 and SAT	Strong
CCRS for Mathematics	SAT Suite	Strong
CCRS for Science	SAT	Strong

In the sections that follow, we offer a description of our alignment methodology and a more detailed summary of our findings in each content area. Appendices to this document provide detailed alignment tables for each grade/course and subject area.

[1] In his widely published research on the alignment of educational expectations with large-scale assessment systems, Norman Webb asserts, among other criteria, that at least 50% of the skills within a content category should have at least one related assessment item. When looking at alignment matches between the Texas CCRS and TEKS and the testing domains of the SAT Suite, our team found the alignment to be "strong" (equal to or greater than 50% of standards aligned. See Norman L. Webb, "Issues Related to Judging the Alignment of Curriculum Standards and Assessments," *Applied Measurement in Education* 20, no. 1 (December 2007): 7–25. https://www.cehd.umn.edu/edpsych/c-bas-r/docs/webb2007.pdf.

Section 1: Alignment Summary

In his widely published research on alignment, Norman Webb writes, "Assessments, as well as curricula, designed to fulfill expectations and standards are constrained by very pragmatic factors such as time, sequencing, and a high variation in the rate of learning. These constraints force those who develop assessments to make decisions about the amount of emphasis or weight that will be given to different topics[2] on a test." He goes on to define the criteria by which an assessment program can measure itself, using a "scale of agreement" whereby an acceptable alignment can be achieved when "assessments cover a sufficient number of topics in expectations so that a student judged to have acceptable knowledge on the assessments will have demonstrated some knowledge on nearly all topics in expectations."[3]

Webb goes on to write that "judging alignment is strengthened by using specific criteria to analyze agreement among expectations and assessments." One of these specific criteria is *categorial concurrence*, which is achieved when "the same or consistent categories of content appear in both expectations and assessments."

There is strong concurrence between the SAT Suite and the categories of knowledge defined in the Texas CCRS and TEKS. While not every standard is assessed within the SAT Suite, nearly all domains are represented, and a variety of standards are sampled from each domain. In the sections that follow, we provide a detailed summary of alignment between the SAT Suite and the Texas CCRS and TEKS for English Language Arts/Reading and Mathematics.

English Language Arts/Reading

The Texas Essential Knowledge and Skills (TEKS) for English Language Arts/Reading, adopted in 2017, along with the Texas College and Career Readiness Standards (CCRS), revised in 2018, define a broad array of literacy skills that interconnect reading, writing, listening, speaking, and thinking. Some of these skills—including those related to speaking, listening, and research—are not directly measured by the digital SAT Suite. Considering the remaining skills in vocabulary,

[2] Webb defines topics as large categories of knowledge "identified by standards or main areas of content specified."

[3] Norman L. Webb, *Criteria for Alignment of Expectations and Assessments in Mathematics and Science Education* (Council of Chief State School Officers and National Institute for Science Education Research Monograph No. 6). (Madison: University of Wisconsin, Wisconsin Center for Education Research, 1997): 23. https://files.eric.ed.gov/fulltext/ED414305.pdf.

comprehension, response, multiple genres, author's purpose and craft, and composition, we find that the suite is well aligned to Texas's standards, with both the suite and the standards focusing on skills critical for students' secondary and post-secondary success.

The digital SAT Suite's Reading and Writing section—administered as part of the SAT, PSAT/NMSQT and PSAT 10, and PSAT 8/9—measures many of the same skills and knowledge emphasized in the Texas CCRS and TEKS. The primary aim of the Reading and Writing section is to assess students' readiness for college and workforce training with respect to literacy. To that end, the Reading and Writing section focuses on key elements of comprehension, rhetoric, writing, and language conventions that have been identified by the best available evidence as necessary for postsecondary readiness and success.

Students who are successful on the Reading and Writing section will be able to

- demonstrate understanding of **information and ideas** in texts across a range of academic disciplines and complexities aligned with college and career readiness requirements;
- effectively evaluate the **craft and structure** of texts, including demonstrating understanding and proficient use of high-utility academic vocabulary in context;
- revise the **expression of ideas** in texts to enhance communicative power in accordance with specified rhetorical goals; and
- edit texts in accordance with **Standard English conventions** in order to meet academic and workplace expectations regarding the use of standardized expression.

College Board's alignment study looked at each digital SAT Suite program and considered its alignment to the corresponding TEKS and/or CCRS. Specifically, the study examined the following comparisons:

1. Grade 8 TEKS to the digital PSAT 8/9
2. English I TEKS to the digital PSAT 8/9
3. English II TEKS to the digital PSAT/NMSQT and PSAT 10
4. English III TEKS to the digital SAT and the digital PSAT/NMSQT and PSAT 10
5. English IV TEKS to the digital SAT
6. Texas College and Career Readiness Standards to the digital SAT Suite

Below are summaries of College Board's alignments.

- **Grade 8**: The digital PSAT 8/9 test design covers all grade 8 strands except Research and Inquiry, addressing the overarching (numbered) standards related to vocabulary, comprehension skills, response skills, multiple genres, author's purpose and craft, and composition. Of the 61 sub-standards within these overarching standards, 32 (52%) align to the digital PSAT 8/9. College Board also examined the skills designated for the Grade 8 STAAR Reading Language Arts Assessment. Of the 44 standards included in the 2022 grade 8 assessed curriculum framework, 27 (61%) are aligned. The percentage increases to 74% when considering the alignment of the digital PSAT 8/9 to the standards designated as "readiness" (those emphasized in the framework and considered especially critical for student success).
- **English I**: The digital PSAT 8/9 test design covers all English I strands except Research and Inquiry, once again addressing the overarching (numbered) standards related to vocabulary,

comprehension skills, response skills, multiple genres, author's purpose and craft, and composition. Of the 58 sub-standards within these overarching standards, 32 (55%) align to the digital PSAT 8/9. College Board also examined the skills designated for the English I STAAR Assessment. Of the 42 standards included in the 2022 English I assessed curriculum framework, 28 (67%) are aligned. The percentage increases to 86% when considering the alignment of the digital PSAT 8/9 to the standards designated by the framework as "readiness."

- **English II**: As is true for the digital PSAT 8/9 test design relative to grade 8 and English I, the digital PSAT/NMSQT and PSAT 10 design covers all English II strands except Research and Inquiry, addressing the overarching (numbered) standards related to vocabulary, comprehension skills, response skills, multiple genres, author's purpose and craft, and composition. Of the 58 sub-standards within these overarching standards, 33 (57%) are aligned. College Board also examined the skills designated for the English II STAAR Assessment. Of the 42 standards included in the 2022 English II assessed curriculum framework, 29 (69%) are aligned. The percentage increases to 86% when considering the alignment of the digital PSAT 10 and PSAT/NMSQT to the standards designated by the framework as "readiness."
- **English III**: Both the digital SAT and the digital PSAT/NMSQT and PSAT 10 test designs cover all English III strands except Research and Inquiry. Of the 55 sub-standards within these overarching standards, 29 (53%) align to the digital SAT and the digital PSAT 10 and PSAT/NMSQT.
- **English IV**: The digital SAT test design covers all English IV strands except Research and Inquiry. Of the 55 sub-standards within these overarching standards, 29 (53%) are aligned.
- **Texas College and Career Readiness Standards (ELA)**: Of the 23 Texas CCRS standards in writing and reading, 12 (52%) align to the digital SAT Suite. College Board did not examine alignment to CCRS standards in speaking, listening, or research.

Readers who wish to see detailed alignments to the digital SAT Suite can find these in **Appendix B: Alignments of English Language Arts/Reading Standards to Digital SAT Suite**.

Math

The desire to achieve educational excellence was the driving force behind the adoption of the Texas Essential Knowledge and Skills (TEKS) for Mathematics in 2012. Guided by the Texas College and Career Readiness Standards (CCRS), the TEKS in mathematics are designed to prepare all Texas students for the challenges they will face in the 21st century. Like the TEKS and the Texas CCRS, the digital SAT Suite Math section is focused on the skills that are most critical for students to master as they prepare for post-secondary work and beyond.

The Math section of the digital SAT Suite is designed to elicit evidence from student performance in support of four broad claims about students' math achievement. To be successful on the Math section, students must be able to

- analyze, fluently solve, and create linear equations and inequalities as well as analyze and fluently solve systems of linear equations and inequalities using multiple techniques (**Algebra**);

- exhibit attainment of skills and knowledge central for progression to more advanced math courses, including analyzing and fluently solving absolute value, quadratic, exponential, polynomial, rational, radical, and other nonlinear functions (**Advanced Math**);
- apply quantitative reasoning about ratios, rates, and proportional relationships; understand and apply unit rate; and analyze and interpret one- and two-variable data (**Problem-Solving and Data Analysis**); and
- solve problems that focus on perimeter, area, and volume; angles, triangles, and (PSAT/NMSQT, PSAT 10, and SAT only) trigonometry; and circles (SAT only) (**Geometry and Trigonometry**).

While the TEKS process standards are not specifically addressed in this report, these standards can be found interwoven throughout the digital SAT Suite just as they are integrated throughout the TEKS for mathematics. The process standards define expectations to ensure students become successful problem solvers who use mathematics efficiently in everyday life. In order to do well on the varied item types they will see on the SAT Suite, students must use a methodical approach to problem-solving (TEKS Process Standard B). In the SAT Suite's Problem-Solving and Data Analysis domain, students must display, explain, or justify mathematical ideas and arguments using precise mathematical language (TEKS Process Standard G). Additionally, throughout all the SAT Suite domains, students are asked to communicate mathematical ideas, reasoning, and their implications using multiple representations (TEKS Process Standards D, E, and F).

College Board's alignment study looked at each digital SAT Suite program and considered its alignment to the corresponding standards in the TEKS and/or Texas CCRS. Specifically, the study examined the following comparisons:

1. Digital SAT to the Texas College and Career Readiness Standards in Mathematics
2. Digital SAT Suite to Algebra I
3. Digit SAT Suite to Algebra II
4. Digital SAT Suite to Geometry
5. Digital PSAT 8/9 to Grade 8 Math

Below are summaries of College Board's alignments by grade and test(s).

- **TEKS Algebra I:** Research shows the distinctive importance of algebra with respect to postsecondary success. As a result, there is a strong alignment of the digital SAT Suite to the TEKS in Algebra I. Of the 49 standards in Algebra I, 42 (85%) are aligned to the SAT, 37 (75%) are aligned to the PSAT/NMSQT and PSAT 10, and 31 (63%) are aligned to the PSAT 8/9.
- **TEKS Algebra II:** Likewise, the alignment of the digital SAT Suite to Algebra II is also strong. Of the 48 standards in Algebra II, 29 (60%) are aligned to the SAT, 25 (52%) are aligned to the PSAT/NMSQT and PSAT 10, and 13 (27%) are aligned to the PSAT 8/9.
- **TEKS Geometry:** The SAT Suite also offers a robust alignment to the TEKS standards in high school Geometry, especially with respect to the SAT. Of the 42 standards in Geometry, 30 (71%) align to the SAT, 24 (57%) align to the PSAT/NMSQT and PSAT 10, and 16 (38%) align to the PSAT 8/9.

- **TEKS for Mathematics Grades 8:** The PSAT 8/9 is well aligned to the TEKS in grade 8 mathematics. Of the 45 TEKS standards in grade 8, 23 (51%) align to the PSAT 8/9.
- **Texas College and Career Readiness Standards:** The Texas CCRS define what students should know and be able to do to succeed in entry-level college courses offered at Texas public community/technical colleges and universities. Of the 65 standards in the Texas CCRS for Mathematics, 34 (52%) are represented in whole or in part on the SAT.

Readers who wish to see detailed alignments to the digital SAT Suite can find these in **Appendix C: Alignments of Mathematics Standards to Digital SAT Suite**.

Science

The Texas College and Career Readiness Standards (CCRS) in science specify the knowledge and skills necessary to succeed in entry-level community college and university courses. Unlike the high school graduation standards, which emphasize content knowledge and basic skills, the CCRS emphasize content knowledge as a means to an end in which the content stimulates deeper levels of thinking and learning.

Although the digital SAT Suite was not designed specifically to measure student achievement in any specific scientific discipline, questions throughout both the Reading and Writing and the Math sections assess students' science reasoning skills.

In the Reading and Writing section, science is, along with the humanities, history/social studies, and literature, one of the four core subject areas sampled in passage content. Science passages in the Reading and Writing section are grounded in authentic contexts—actual studies, real data, and the like. The passages illustrate scientific reasoning and require students to engage in such reasoning to analyze them successfully. Questions associated with science passages require students to demonstrate such skills as reading and understanding hypotheses; locating, analyzing, and making use of data conveyed in words as well as in informational graphics; and using textual information along with logic and reasoning to evaluate the implications of research findings on hypotheses (such as whether data collected by scientists support or refute a given hypothesis).

In the Math section, science contexts (along with those in history/social studies and others about real-world topics) are used to assess students' ability to solve math problems grounded in realistic situations. Although the focus of the science-context questions remains eliciting demonstrations of skills and knowledge in math, topics in science are fertile ground for rich math questions given the close conceptual and practical association between the two fields. Students answering in-context math questions grounded in science topics may be asked to select the equation or function that best describes given data or to identify the portion of an algebraic expression or equation that represents a particular component of a mathematical model of a physical phenomenon. Students answering certain Math questions outside of context may also have to apply the kinds of skills and knowledge commonly called on in science, such as converting between units.

The skills and knowledge assessed as part of an analysis in science domain represent a broad range of reading, writing, math, and reasoning processes grounded in science. These skills and knowledge include but are not necessarily limited to the following:

- Analyzing and evaluating summaries of authentic scientific research studies, including

    - Understanding and making use of elements of the scientific method, including problem statements, hypotheses, data collection, findings, and implications.
    - Tracing aspects of scientific reasoning (e.g., understanding the reason a given study was conducted, determining the logical consequences of particular findings in relation to a hypothesis).
    - Identifying hypotheses and other forms of scientific claim.
    - Locating and analyzing relevant experimental and observational data represented in words as well as in informational graphics.
    - Understanding findings gathered from experiments and observational studies.
    - Using experimental and observational data to evaluate hypotheses (e.g., determining whether data collected support or refute a given hypothesis).
    - Assessing the scientific and practical implications of research findings.
- Comparing scientific viewpoints (e.g., determining what one scientist or team would most likely say in response to the findings of a different scientist or team studying the same topic).
- Creating and using algebraic equations, functions, and inequalities to model relationships and solve problems in scientific contexts.
- Interpreting algebraic equations, functions, and inequalities (and/or portions thereof) in scientific contexts.

College Board content experts closely examined the Texas College and Career Readiness Standards in Science to determine which of these align to the digital SAT. While the digital SAT does not measure discipline-specific content knowledge, it does align well to the Texas CCRS in Scientific Applications of Mathematics and Communication. Of the 23 standards in these CCRS Foundation Skills, 15 (65%) align with the digital SAT. Readers who wish to see detailed alignments to the digital SAT can find these in **Appendix D: Alignments of Science Standards to Digital SAT**.

Section 2: The Digital SAT Suite

The following is a brief overview of the digital SAT Suite of Assessments. An exhaustive discussion of the suite and its tests can be found in the ***Assessment Framework for the Digital SAT Suite***.

The *digital SAT Suite of Assessments* is College Board's collective term for its flagship suite of college and career readiness testing programs and services. The digital suite continues and expands on College Board's core commitments to access and opportunity for all students. These commitments include

- offering valid, reliable, fair, and objective assessments of students' academic achievement,
- providing actionable information to students and educators about evidence-based ways to build on academic strengths and to address skill and knowledge shortcomings relevant to college and career readiness,
- connecting students to opportunities they have earned through their hard work in school, such as admission to postsecondary institutions well suited to their achievement and interests as well as scholarships and recognition programs,
- helping state users meet federal accountability requirements through industry-leading assessments, services, and documentation, and
- helping higher education institutions to find and enroll prospective students and then to support those students so that they can be successful on their campuses.

The digital SAT Suite consists of four testing programs, each with its own purpose(s) and target population.

- The **SAT** is typically administered to high school juniors and seniors. The test measures essential prerequisites for postsecondary readiness and success as determined through an extensive, ongoing research process.
- **PSAT/NMSQT** and **PSAT 10** are typically administered to high school sophomores and juniors. PSAT/NMSQT is administered in the fall of each academic year, while PSAT 10 is administered in the spring. The PSAT/NMSQT and PSAT 10 tests are identical in format and content, but only PSAT/NMSQT serves as a qualifying test for the National Merit Scholarship Corporation's annual scholarship program. PSAT/NMSQT and PSAT 10 serve as

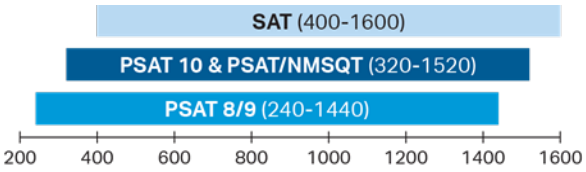
opportunities to check in on students' progress toward postsecondary readiness and to focus students' preparation for post–high school study.

- **PSAT 8/9** is typically administered to eighth and ninth graders and serves as a baseline for assessing students' readiness for college and career.

The four tests measure the same broad knowledge domains and skills, with slight modifications reflecting differences in the age and attainment of students across the secondary grades, making it easier for students, families, and educators to monitor student progress and address any areas of weakness.

Each test in the digital SAT Suite consists of two sections: a Reading and Writing (RW) section and a Math section. Correspondingly, each test yields three scores—two section scores and a total score (the last of which is the arithmetic sum of the section scores)—accompanied by test interpretation tools that allow test takers and their families, educators, and other stakeholders to make informed, data-based decisions about students' educational futures. Scores for all the assessments are on the same vertical scale, allowing meaningful interpretations about students' academic growth as they move between testing programs within the suite.

Figure 1 graphically depicts the total score scales of the digital SAT Suite assessments.



The standard administration[4] for each of the digital SAT Suite tests employs a multistage adaptive test (MST) model. In the digital suite's two-stage MST model, each test section (Reading and Writing; Math) is divided into two separately timed, equal-length portions (*stages*), each consisting of a *module* of test questions. The first module of each test section consists of questions across a broad span of difficulty (i.e., easy, medium, and hard questions) so that a robust if provisional assessment of test taker achievement can be obtained. The customized test delivery platform used for the digital SAT Suite then uses that information to select the second (and final) module to administer to a given test taker. This second module consists of questions that are, on average, more or less difficult than the questions in the first module. Questions from all four Reading and Writing and Math content domains (discussed below) are included in each section's modules; this ensures, in part, that students are sampled fairly on all key content dimensions in the first module prior to being routed to the second in each section. Adaptive testing in this way is highly beneficial to students (and other stakeholders) because the same quality of testing (in terms of desirable content and psychometric properties) is delivered via significantly shorter testing instruments than would be possible if linear (nonadaptive) test forms were used instead.

[4] Although the vast majority of students will take the digital SAT Suite tests electronically on a digital device, paper-based and other accommodations, including linear (nonadaptive) test forms, are available for students with approved accommodations who require them to access the tests and their content. Though not discussed further in this document, the linear test specifications closely mirror those for the digital adaptive tests, although each linear test is slightly longer than its counterpart to account for the lack of adaptivity in linear testing. See Appendix D in the Assessment Framework for the Digital SAT Suite for more information on these linear tests and their specifications.

Question pools for the digital SAT Suite tests are sufficiently large to permit each student to be administered a unique but highly comparable test form, thereby making the tests highly secure while ensuring that each student receives a form tightly aligned with the test's specifications.

Table 1 below summarizes the basic characteristics of the digital SAT Suite tests.

Table 1: Overall Specifications for the Digital SAT Suite Tests

Characteristic	Reading and Writing Section	Math Section
Administration	Two-stage adaptive test design; one Reading and Writing section administered via two separately timed modules	Two-stage adaptive test design; one Math section administered via two separately timed modules
Test length (number of operational and pretest questions)	1st module: 25 operational questions and 2 pretest questions 2nd module: 25 operational questions and 2 pretest questions	1st module: 20 operational questions and 2 pretest questions 2nd module: 20 operational questions and 2 pretest questions
Time per stage	1st module: 32 minutes 2nd module: 32 minutes	1st module: 35 minutes 2nd module: 35 minutes
Total number of questions	54 questions	44 questions
Total time allotted	64 minutes	70 minutes
Average time per question	1.19 minutes	1.59 minutes
Scores reported	Total score Section scores (Reading and Writing; Math)	
Question type(s) used	Discrete; four-option multiple-choice	Discrete; four-option multiple-choice (≈75%) and student-produced response (SPR) (≈25%)
Stimulus subject areas	Literature, history/social studies, humanities, science	Science, social studies, real-world topics
Word count	25–150 (6-character) words per stimulus text	Approximately 30% of questions in context; a majority of in-context questions have 50 (6-character) words or fewer
Informational graphics	Yes; tables, bar graphs, line graphs	Yes
Text complexity bands	Grades 6–8, grades 9–11, grades 12–14 (Grades 12–14 excluded from PSAT 8/9)	N/A[5]

[5] Math contexts are not formally rated for text complexity. However, Math test development staff review each context qualitatively to ensure that its linguistic load and demands are consistent with the requirements of the question being posed, and Math (and Reading and Writing) staff have been trained in linguistic modification principles, which seek to relieve students of unnecessary linguistic burdens during test taking through clear and concise word choice in contexts and questions.

The Reading and Writing Section

The Reading and Writing section of the digital SAT Suite assessments is designed to measure students' attainment of critical college and career readiness prerequisites in literacy in English language arts as well as in various academic disciplines, including literature, history/social studies, the humanities, and science. The Reading and Writing section focuses on key elements of comprehension, rhetoric, and language use that the best available evidence identifies as necessary for postsecondary readiness and success. Over the course of a Reading and Writing section of one of the digital SAT Suite assessments, students answer multiple-choice questions requiring them to read, comprehend, and use information and ideas in texts; analyze the craft and structure of texts; revise texts to improve the rhetorical expression of ideas; and edit texts to conform to core conventions of Standard English.

The construct for the Reading and Writing section is literacy achievement relative to core college and career readiness requirements in English language arts as well as in the academic disciplines of literature, history/social studies, the humanities, and science.

Students who are successful on the Reading and Writing section will be able to

- demonstrate understanding of information and ideas in texts across a range of academic disciplines and complexities aligned with college and career readiness requirements.
- effectively evaluate the craft and structure of texts, including demonstrating understanding and proficient use of high-utility academic vocabulary in context.
- revise the expression of ideas in texts to enhance communicative power in accordance with specified rhetorical goals.
- edit texts in accordance with Standard English conventions in order to meet academic and workplace expectations regarding the use of standardized expression.

Each of the claims listed above corresponds to one of the four content domains that form the architecture of the Reading and Writing section. Table 2 offers a synopsis of the content domain structure of the section, the skill/knowledge testing points addressed in each content domain, and the distribution of operational (non-pretest) questions by domain.

Table 2: Digital SAT Suite Reading and Writing Section Content Domains and Operational Question Distribution

Content Domain	Domain Description (Claim)	Skill/Knowledge Testing Points	Operational Question Distribution
Information and Ideas	Students will use comprehension, analysis, and reasoning skills and knowledge as well as what is stated and implied in texts (including in any accompanying informational graphics) to locate, interpret, evaluate, and integrate information and ideas.	Central Ideas and Details Inferences Command of Evidence • Textual • Quantitative	≈26%/ 12–14 questions

Content Domain	Domain Description (Claim)	Skill/Knowledge Testing Points	Operational Question Distribution
Craft and Structure	Students will use comprehension, vocabulary, analysis, synthesis, and reasoning skills and knowledge to use and determine the meaning of high-utility academic words and phrases in context, evaluate texts rhetorically, and make supportable connections between multiple topically related texts.	Words in Context Text Structure and Purpose Cross-Text Connections	≈28%/ 13–15 questions
Expression of Ideas	Students will use revision skills and knowledge to improve the effectiveness of written expression in accordance with specified rhetorical goals.	Rhetorical Synthesis Transitions	≈20%/ 8–12 questions
Standard English Conventions	Students will use editing skills and knowledge to make text conform to core conventions of Standard English sentence structure, usage, and punctuation.	Boundaries Form, Structure, and Sense	≈26%/ 11–15 questions

All questions on the Reading and Writing section are four-option multiple-choice in format, with a single best answer for each question.

Questions in the Reading and Writing section are broken down into *content domains*, *skills*, and *task groups* and are also associated with one of four *subject areas* representing the content area of the passage(s) used as stimuli. *Content domains*, as discussed above, are the four large categories of skills and knowledge assessed on the digital SAT Suite tests: Information and Ideas, Craft and Structure, Expression of Ideas, and Standard English Conventions. Each of these domains is further broken down into *skills*, otherwise known as skill/knowledge testing points, which identify the range of skills and knowledge assessed in the section. *Task groups* associated with each skill identify the range of testable approaches within each skill. For example, a Central Ideas and Details question (a skill in the Information and Ideas content domain) may assess either an explicit or implicit central idea or detail. Subject area tags indicate which of the four content areas—literature (LIT), history/social studies (HSS), the humanities (HUM), and science (SCI)—is(are) eligible to be represented in the stimuli associated with each task group. To continue the previous example, Central Ideas and Details questions, whether focused on explicit or implicit ideas and details, may have stimuli from any of the four subject areas represented in the digital SAT Suite RW section. Table 3 summarizes the RW taxonomy.

Table 3: Reading and Writing Section Taxonomy in Detail

Content Dimension	Description
Text Complexity	The passages (and pairs of passages) on the Reading and Writing section represent a specified range of text complexities from grades 6–8 through grades 12–14. (Grades 12–14 passages are excluded from appearing on PSAT 8/9.)
Information and Ideas	Students will use comprehension, analysis, and reasoning skills and knowledge as well as what is stated and implied in texts (including in any accompanying informational graphics) to locate, interpret, evaluate, and integrate information and ideas.
Central Ideas and Details	Students will determine the central idea of a text and/or interpret the key details supporting that idea.

Content Dimension	Description
Inferences	Students will draw reasonable inferences based on explicit and/or implicit information and ideas in a text.
Command of Evidence	Students will determine the evidence in a text that best supports a specified claim or point.
Textual	Students will determine the textual evidence (e.g., a fact, detail, or example from a text) that best supports a specified claim or point.
Quantitative	Students will determine the quantitative evidence (i.e., data from an informational graphic) that best supports a specified claim or point.
Craft and Structure	Students will use comprehension, vocabulary, analysis, synthesis, and reasoning skills and knowledge to use and determine the meaning of high-utility words and phrases in context, evaluate texts rhetorically, and make supportable connections between multiple topically related texts.
Words in Context	Students will determine the meaning of a high-utility academic word or phrase in context or use such vocabulary in a contextually appropriate way.
Text Structure and Purpose	Students will analyze the structure of a text or determine the main rhetorical purpose of a text.
Cross-Text Connections	Students will draw reasonable connections between two texts on a related topic.
Expression of Ideas	Students will use revision skills and knowledge to improve the effectiveness of written expression in accordance with specified rhetorical goals.
Rhetorical Synthesis	Students will strategically integrate information and ideas on a topic to form an effective sentence achieving a specified rhetorical aim.
Transitions	Students will determine the most effective transition word or phrase to logically connect information and ideas in a text.
Standard English Conventions	Students will use editing skills and knowledge to make text conform to core conventions of Standard English sentence structure, usage, and punctuation.
Boundaries	Students will edit text to ensure that sentences are conventionally complete.
Form, Structure, and Sense	Students will edit text to conform to conventional usage (e.g., agreement, verb tense/aspect).

The Math Section

The Math section of the digital SAT Suite assessments is designed to measure students' attainment of critical college and career readiness prerequisites in math. The digital SAT Suite Math section focuses on key elements of algebra, advanced math, problem-solving and data analysis, and geometry and (SAT, PSAT/NMSQT, and PSAT 10 only) trigonometry that the best available evidence identifies as necessary for postsecondary readiness and success. Over the course of the Math section of one of the digital SAT Suite assessments, students answer multiple-choice and student-produced response (SPR) questions that measure their fluency with, understanding of, and ability to apply the math concepts, skills, and practices that are most essential for readiness for entry-level postsecondary work.

The construct for the Math section is math achievement relative to core college and career readiness requirements. Although literacy achievement is not directly measured, students are

still required to employ such skills and knowledge to a limited, carefully constrained extent when solving math problems set in context.

In general terms, students who are successful on the Math section will be able to

- analyze, fluently solve, interpret, and create linear equations and inequalities as well as analyze and fluently solve systems of equations using multiple techniques.
- demonstrate attainment of skills and knowledge central for successful progression to more advanced math courses, including analyzing, fluently solving, interpreting, and creating equations, including absolute value, quadratic, exponential, polynomial, rational, radical, and other nonlinear equations, as well as analyzing and fluently solving systems of linear and nonlinear equations in two variables.
- apply quantitative reasoning about ratios, rates, and proportional relationships; understand and apply unit rate; and analyze and interpret one- and two-variable data.
- solve problems that focus on perimeter, area, and volume; angles, triangles, and trigonometry; and circles.

These general suite-level claims are modified to some extent at the individual test program level to account for differences in the age and attainment of the test-taking populations served by each testing program, as elaborated below.

Each of the claims listed above corresponds to one of the four content domains that form the architecture of the Math section. Tables 4 through 6 display the domain structure of the Math section by test program level, beginning with the SAT. The tables include the domains and their associated claims, the skill/knowledge testing points addressed in each domain, and the distribution of operational (scored) questions by domain on each test form.

Table 4: Digital SAT Math Section Content Domains and Operational Question Distribution

Content Domain	Domain Description (Claim)	Skill/Knowledge Testing Points	Operational Question Distribution
Algebra	Students will interpret, create, use, represent, and solve problems using linear representations, and make connections between different representations of linear relationships, all from high school algebra courses preparatory for the math aligned with college and career readiness expectations.	Linear equations in one variable Linear equations in two variables Linear functions Systems of two linear equations in two variables Linear inequalities in one or two variables	≈35%/ 13–15 questions
Advanced Math	Students will interpret, rewrite, fluently solve, make strategic use of structure, and create absolute value, quadratic, exponential, polynomial, rational, radical, and other nonlinear equations and make connections between different representations of a nonlinear relationship between two variables, all from high school courses preparatory for the math aligned with college and career readiness expectations.	Equivalent expressions Nonlinear equations in one variable and systems of equations in two variables Nonlinear functions	≈35%/ 13–15 questions

Content Domain	Domain Description (Claim)	Skill/Knowledge Testing Points	Operational Question Distribution
Problem-Solving and Data Analysis	Using quantitative reasoning, students will fluently solve problems using percentages, proportional relationships, ratios, rates, and units; analyze and interpret distributions of data; use various representations of data to find relative frequency, probabilities, and conditional probabilities; fit models to data and compare linear and exponential growth; and calculate, compare, and interpret mean, median, range, and standard deviation, understand basic study design, and interpret margin of error, all from high school courses preparatory for the math aligned with college and career readiness expectations.	Ratios, rates, proportional relationships, and units Percentages One-variable data: distributions and measures of center and spread Two-variable data: models and scatterplots Probability and conditional probability Inference from sample statistics and margin of error Evaluating statistical claims: observational studies and experiments	≈15%/ 5–7 questions
Geometry and Trigonometry	Students will solve problems associated with length, area, volume, and scale factors using geometric figures; determine congruence, similarity, and sufficiency using concepts and theorems about vertical angles, triangles, and parallel lines cut by a transversal; solve problems using the Pythagorean theorem, right triangle and unit circle trigonometry, and properties of special right triangles; and use properties and theorems relating to circles to solve problems, all from high school courses preparatory for the math aligned with college and career readiness expectations.	Area and volume Lines, angles, and triangles Right triangles and trigonometry Circles	≈15%/ 5–7 questions

Table 5: Digital PSAT/NMSQT and PSAT 10 Math Section Content Domains and Operational Question Distribution

Content Domain	Domain Description (Claim)	Skill/Knowledge Testing Points	Operational Question Distribution
Algebra	Students will interpret, create, use, represent, and solve problems using linear representations and make connections between different representations of linear relationships, all from high school algebra courses preparatory for the math aligned with college and career readiness expectations.	Linear equations in one variable Linear equations in two variables Linear functions Systems of two linear equations in two variables Linear inequalities in one or two variables	≈35%/ 13–15 questions
Advanced Math	Students will interpret, rewrite, fluently solve, make strategic use of structure, and create absolute value, quadratic, exponential, polynomial, rational, radical, and other nonlinear equations and make connections between different representations of a nonlinear relationship between two variables, all from high school courses preparatory for the math aligned with college and career readiness expectations.	Equivalent expressions Nonlinear equations in one variable and systems of equations in two variables Nonlinear functions	≈32.5%/ 12–14 questions
Problem-Solving and Data Analysis	Using quantitative reasoning, students will fluently solve problems using percentages, proportional relationships, ratios, rates, and units; analyze and interpret distributions of data; use various representations of data to find relative frequency, probabilities, and conditional probabilities; fit models to data and compare linear and exponential growth; and calculate, compare, and interpret mean, median, and range and compare distributions with the same and different standard deviation, all from high school courses preparatory for the math aligned with college and career readiness expectations.	Ratios, rates, proportional relationships, and units Percentages One-variable data: distributions and measures of center and spread Two-variable data: models and scatterplots Probability and conditional probability Inference from sample statistics	≈20%/ 7–9 questions
Geometry and Trigonometry	Students will solve problems associated with length, area, volume, and scale factors using geometric figures; determine congruence, similarity, and sufficiency using concepts and theorems about vertical angles, triangles, and parallel lines cut by a transversal; and solve problems using the Pythagorean theorem and right triangle trigonometry, all from high school courses preparatory for the math aligned with college and career readiness expectations.	Area and volume Lines, angles, and triangles Right triangles and right triangle trigonometry	≈12.5%/ 4–6 questions

Table 6: Digital PSAT 8/9 Math Section Content Domains and Operational Question Distribution

Content Domain	Domain Description (Claim)	Skill/Knowledge Testing Points	Operational Question Distribution
Algebra	Students will interpret, create, use, represent, and solve problems using linear representations and make connections between different representations of linear relationships, all from middle school/junior high school and first-year algebra courses preparatory for the math aligned with college and career readiness expectations.	Linear equations in one variable Linear equations in two variables Linear functions Systems of two linear equations in two variables Linear inequalities in one or two variables	≈42.5%/ 16–18 questions
Advanced Math	Students will rewrite, fluently solve, and make strategic use of structure, absolute value, quadratic, exponential, polynomial, and other nonlinear equations and make connections between different representations of a nonlinear relationship between two variables, all from middle school/junior high school and first-year algebra courses preparatory for the math aligned with college and career readiness expectations.	Equivalent expressions Nonlinear equations in one variable and systems of equations in two variables Nonlinear functions	≈20%/ 7–9 questions
Problem-Solving and Data Analysis	Using quantitative reasoning, students will fluently solve problems using percentages, proportional relationships, ratios, rates, and units; analyze and interpret distributions of data; use various representations of data to find relative frequency, probabilities, and conditional probabilities; fit models to data; and calculate, compare, and interpret mean, median, and range, all from middle school/junior high school and first-year algebra courses preparatory for the math aligned with college and career readiness expectations.	Ratios, rates, proportional relationships, and units Percentages One-variable data: distributions and measures of center and spread Two-variable data: models and scatterplots Probability and conditional probability	≈25%/ 9–11 questions
Geometry	Students will solve problems associated with length, area, volume, and scale factors using geometric figures; apply theorems such as triangle sum; and solve problems using the Pythagorean theorem, all from middle school/junior high school and first-year algebra courses preparatory for the math aligned with college and career readiness expectations.	Area and volume Lines, angles, and triangles, including right triangles	≈12.5%/ 4–6 questions

Two question formats are used on the Math section. Approximately 75 percent of the questions are in the four-option multiple-choice (MC) format, for which students are asked to select the single best response from among the four provided answer options. The remaining approximately 25 percent of questions are in the student-produced response (SPR) format, for which students are asked to generate and enter their own responses; while these questions may have more than one possible correct response, students are directed to supply only one answer.

The MC and SPR questions will measure skills and knowledge across the four content dimensions of the tests as shown in table 7.

Table 7: Digital SAT Suite Math Section: Distribution of MC and SPR Question Formats across Content Domains

Digital SAT Suite Testing Program	Question Format	Algebra	Advanced Math	Problem-Solving and Data Analysis	Geometry and Trigonometry (SAT, PSAT/NMSQT, PSAT 10)/Geometry (PSAT 8/9)	Total
SAT	MC	10–11	10–11	4–5	4–5	28–32
	SPR	3–4	3–4	1–2	1–2	8–12
PSAT/NMSQT/10	MC	10–11	10–11	5–6	3–4	28–32
	SPR	3–4	2–3	2–3	1–2	8–12
PSAT 8/9	MC	14–15	5–6	6–7	3–4	28–32
	SPR	2–3	2–3	3–4	1–2	8–12

Detailed views of the Math taxonomy are presented in **Appendix A: Math Section Taxonomy in Detail**, including the skill/knowledge testing points in each of four domains: Algebra, Advanced Math, Problem-Solving and Data Analysis, and Geometry (and Trigonometry).

Section 3: Evidentiary Foundations

In line with its primary purpose, the digital SAT Suite of Assessments is founded on the best available evidence concerning essential college and career readiness prerequisites. When designing the digital suite, College Board drew on three main sources of such evidence.

- Research conducted or planned on the design of the digital SAT Suite itself, which includes an extensive series of one-time and ongoing studies intended to gather evidence in support of design features of the suite.
- Construct and content validity evidence, which affirms the choices College Board has made in determining what skills and knowledge should be assessed by the digital SAT Suite.
- Subject area evidence, which confirms important content emphases in English language arts/literacy and math assessment on the digital SAT Suite.

This section briefly summarizes the process used to examine and the findings from each source. A full overview of the evidence, including extensive research citations, may be found in chapter 5 of the ***Assessment Framework for the Digital SAT Suite***.

Research on the digital SAT Suite. The process of conducting research undergirding key design decisions for the digital SAT Suite continues College Board's tradition of exhaustively examining every aspect of its tests to ensure that they meet or exceed the highest standards for large-scale standardized assessment. These studies, both one-time and ongoing, assess the validity, reliability, and fairness of the digital SAT Suite tests from both psychometric and content standpoints and include test section piloting; pretesting of test questions on samples of the suite's test-taking populations; student postexperience surveys and focus groups; timing, SAT concordance, vertical scaling, and predictive and concurrent validity studies; independent state standards alignment studies; curriculum surveys; and cognitive labs. Findings from these various studies have, to date, supported the design decisions behind the digital SAT Suite and served to confirm that the tests are valid, reliable, and fair measures of students' literacy and math achievement in accordance with college and career readiness outcomes.

Construct and content validity evidence. When evaluating what content to measure on the digital SAT Suite tests, College Board drew on several important sources of information. The first such source was what had been assessed on the paper-based SAT Suite, as those tests were themselves firmly based on evidence regarding essential college and career readiness requirements. Curriculum survey data collected from a nationally representative sample of

postsecondary educators in various subject areas were also extensively consulted to affirm and refine content selection. Finally, College Board internally examined the alignment between the digital SAT Suite tests' specifications and states' college and career readiness standards to ensure broad and extensive conformity to those expectations, even as the standards vary to some extent from state to state and given that the digital suite is not intended to measure any one set of such standards. This internal alignment study will be supplemented by independent, third-party alignment studies to be conducted in 2022 for the SAT and in 2023 for the PSAT-related assessments. This work, to date, has confirmed that the digital SAT Suite tests measure the important constructs of literacy and math achievement and sample a robust range of skills and knowledge elements closely associated with these constructs.

Subject area evidence. College Board has also continued to document and disseminate findings from high-quality third-party research in support of assessment emphases in the digital SAT Suite. For the Reading and Writing section, these emphases include sustained attention to text complexity; close reading and command of evidence, both textual and quantitative; inference making; high-utility academic (tier two) vocabulary; core Standard English sentence structure, usage, and punctuation conventions; and the literacy demands of a range of academic disciplines (literature, history/social studies, the humanities, and science). In Math, subject area research has strongly influenced the selection of skill/knowledge testing points and the manner in which these points are assessed in the content domains of algebra, advanced math, problem-solving and data analysis, and geometry and trigonometry.

Appendix A: Math Section Taxonomy in Detail

Table 8: Math Section Taxonomy in Detail: Algebra

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
Linear equations in one variable	1. Create and use linear equations in one variable to solve problems in a variety of contexts. 2. Identify or create a linear equation in one variable that represents a context. 3. For a linear equation in one variable, interpret a constant, variable, factor, term, or the solution in a context. 4. Solve a linear equation in one variable, making strategic use of algebraic structure. 5. For a linear equation in one variable, determine the conditions under which the equation has no solution, a unique solution, or infinitely many solutions. 6. Fluently solve a linear equation in one variable.	1. Create and use linear equations in one variable to solve problems in a variety of contexts. 2. Identify or create a linear equation in one variable that represents a context. 3. For a linear equation in one variable, interpret a constant, variable, factor, term, or the solution in a context. 4. Solve a linear equation in one variable, making strategic use of algebraic structure. 5. For a linear equation in one variable, determine the conditions under which the equation has no solution, a unique solution, or infinitely many solutions. 6. Fluently solve a linear equation in one variable.	1. Create and use linear equations in one variable to solve problems in a variety of contexts. 2. Identify or create a linear equation in one variable that represents a context. 3. For a linear equation in one variable, interpret a constant, variable, factor, term, or the solution in a context. 4. Solve a linear equation in one variable, making strategic use of algebraic structure. 5. Fluently solve a linear equation in one variable.
Linear functions	1. Create and use linear functions to solve problems in a variety of contexts. 2. Identify or create a linear function to model a relationship between two quantities. 3. For a linear function that represents a context, interpret the meaning of an input/output pair, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. 4. Interpret the graph of a linear function in a context. 5. Make connections between a table, an algebraic representation, or a graph of a linear function not in context.	1. Create and use linear functions to solve problems in a variety of contexts. 2. Identify or create a linear function to model a relationship between two quantities. 3. For a linear function that represents a context, interpret the meaning of an input/output pair, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. 4. Interpret the graph of a linear function in a context. 5. Make connections between a table, an algebraic representation, or a graph of a linear function not in context.	1. Create and use linear functions to solve problems in a variety of contexts. 2. Identify or create a linear function to model a relationship between two quantities. 3. For a linear function that represents a context, interpret the meaning of an input/output pair, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. 4. Interpret the graph of a linear function in a context. 5. Make connections between a table, an algebraic representation, or a graph of a linear function not in context.

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
	6. Make connections between a table, an algebraic representation, or a graph of a linear function in context.	6. Make connections between a table, an algebraic representation, or a graph of a linear function in context.	6. Make connections between a table, an algebraic representation, or a graph of a linear function in context.
Linear functions *(continued)*	7. For a linear function that represents a context, given an input value, find and interpret the output value using the given representation, or given an output value, find and interpret the input value using the given representation, if it exists. 8. Write the rule for a linear function given two input/output pairs or one input/output pair and the rate of change. 9. Evaluate a linear function given an input value, or find the input value for a corresponding output.	7. For a linear function that represents a context, given an input value, find and interpret the output value using the given representation, or given an output value, find and interpret the input value using the given representation, if it exists. 8. Write the rule for a linear function given two input/output pairs or one input/output pair and the rate of change. 9. Evaluate a linear function given an input value, or find the input value for a corresponding output.	7. For a linear function that represents a context, given an input value, find and interpret the output value using the given representation, or given an output value, find and interpret the input value using the given representation, if it exists. 8. Write the rule for a linear function given two input/output pairs or one input/output pair and the rate of change. 9. Evaluate a linear function given an input value, or find the input value for a corresponding output.
Linear equations in two variables	1. Create and use a linear equation in two variables to solve problems in a variety of contexts. 2. Identify or create a linear equation in two variables to model a constraint or condition on two quantities. 3. For a linear equation in two variables that represents a context, interpret a solution, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. 4. Interpret the graph of a linear equation in the form $Ax + By = C$ in a context. 5. Make connections between: a. an algebraic representation and a graph of a linear equation in two variables not in context. b. a table and an algebraic representation or between a table and a graph of a linear equation in two variables not in context. 6. Make connections between a table, an algebraic representation, or a graph of a linear equation in two variables in a context.	1. Create and use a linear equation in two variables to solve problems in a variety of contexts. 2. Identify or create a linear equation in two variables to model a constraint or condition on two quantities. 3. For a linear equation in two variables that represents a context, interpret a solution, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. 4. Interpret the graph of a linear equation in the form $Ax + By = C$ in a context. 5. Make connections between: a. an algebraic representation and a graph of a linear equation in two variables not in context. b. a table and an algebraic representation or between a table and a graph of a linear equation in two variables not in context. 6. Make connections between a table, an algebraic representation, or a graph of a linear equation in two variables in a context.	1. Create and use a linear equation in two variables to solve problems in a variety of contexts. 2. Identify or create a linear equation in two variables to model a constraint or condition on two quantities. 3. For a linear equation in two variables that represents a context, interpret a solution, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. 4. Interpret the graph of a linear equation in the form $Ax + By = C$ in a context. 5. Make connections between: a. an algebraic representation and a graph of a linear equation in two variables not in context. b. a table and an algebraic representation or between a table and a graph of a linear equation in two variables not in context. 6. Make connections between a table, an algebraic representation, or a graph of a linear equation in two variables in a context.

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
	7. For a linear equation in two variables that represents a context, given a value of one quantity in the relationship, find a value of the other, if it exists.	7. For a linear equation in two variables that represents a context, given a value of one quantity in the relationship, find a value of the other, if it exists.	7. For a linear equation in two variables that represents a context, given a value of one quantity in the relationship, find a value of the other, if it exists.
Linear equations in two variables *(continued)*	8. Write an equation for a line given two points on the line, one point and the slope of the line, or one point and a parallel or perpendicular line.	8. Write an equation for a line given two points on the line, one point and the slope of the line, or one point and a parallel or perpendicular line.	8. Write an equation for a line given two points on the line, one point and the slope of the line, or one point and a parallel or perpendicular line.
Systems of two linear equations in two variables	1. Create and use a system of two linear equations in two variables to solve problems in a variety of contexts. 2. Identify or create a system of linear equations in two variables to model constraints or conditions on two quantities. 3. For a system of linear equations in two variables, interpret a solution, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. 4. Solve a system of two linear equations in two variables, making strategic use of algebraic structure. 5. For a system of linear equations in two variables, determine the conditions under which the system has no solution, a unique solution, or infinitely many solutions. 6. Make connections between an algebraic representation and a graph of a system of linear equations in two variables not in context. 7. Make connections between an algebraic representation and a graph of a system of linear equations in two variables in a context. 8. Fluently solve a system of linear equations in two variables.	1. Create and use a system of two linear equations in two variables to solve problems in a variety of contexts. 2. Identify or create a system of linear equations in two variables to model constraints or conditions on two quantities. 3. For a system of linear equations in two variables, interpret a solution, constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. 4. Solve a system of two linear equations in two variables, making strategic use of algebraic structure. 5. For a system of linear equations in two variables, determine the conditions under which the system has no solution, a unique solution, or infinitely many solutions. 6. Make connections between an algebraic representation and a graph of a system of linear equations in two variables not in context. 7. Make connections between an algebraic representation and a graph of a system of linear equations in two variables in a context. 8. Fluently solve a system of linear equations in two variables.	1. Create and use a system of two linear equations in two variables to solve problems in a variety of contexts. 2. Identify or create a system of linear equations in two variables to model constraints or conditions on two quantities. 3. Solve a system of two linear equations in two variables, making strategic use of algebraic structure. 4. Make connections between an algebraic representation and a graph of a system of linear equations in two variables not in context. 5. Make connections between an algebraic representation and a graph of a system of linear equations in two variables in a context. 6. Fluently solve a system of linear equations in two variables.
Linear inequalities in one or two variables	1. Create and use linear inequalities in one or two variables to solve problems in a variety of contexts.	1. Create and use linear inequalities in one or two variables to solve problems in a variety of contexts.	1. Create and use linear inequalities in one or two variables to solve problems in a variety of contexts.

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
	2. Identify or create linear inequalities in one or two variables to model constraints or conditions on two quantities.	2. Identify or create linear inequalities in one or two variables to model constraints or conditions on two quantities.	2. Identify or create linear inequalities in one or two variables to model constraints or conditions on two quantities.

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
Linear inequalities in one or two variables *(continued)*	3. For linear inequalities in one or two variables, interpret a constant, variable, factor, term, or solution, including situations where seeing structure provides an advantage. 4. Given a linear inequality or system of linear inequalities, interpret a point in the *xy*-plane in terms of the solution set. 5. Make connections between tabular, algebraic, and graphical representations of linear inequalities in one or two variables by deriving one from the other.	3. For linear inequalities in one or two variables, interpret a constant, variable, factor, term, or solution, including situations where seeing structure provides an advantage. 4. Given a linear inequality or system of linear inequalities, interpret a point in the *xy*-plane in terms of the solution set. 5. Make connections between tabular, algebraic, and graphical representations of linear inequalities in one or two variables by deriving one from the other.	3. For linear inequalities in one or two variables, interpret a constant, variable, factor, term, or solution, including situations where seeing structure provides an advantage. 4. Given a linear inequality or system of linear inequalities, interpret a point in the *xy*-plane in terms of the solution set.

Table 9: Math Section Taxonomy in Detail: Advanced Math

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
Equivalent expressions	1. Make strategic use of algebraic structure and the properties of operations to identify and create equivalent expressions: a. by factoring polynomials limited to finding a common factor, rewriting binomials that represent a difference of two squares, and rewriting trinomials as the product of two binomials. b. including rewriting simple rational expressions, rewriting expressions with rational exponents in radical form, and factoring polynomials not included in 1a. 2. Fluently add, subtract, and multiply polynomials.	1. Make strategic use of algebraic structure and the properties of operations to identify and create equivalent expressions by factoring polynomials limited to finding a common factor, rewriting binomials that represent a difference of two squares, and rewriting trinomials as the product of two binomials. 2. Fluently add, subtract, and multiply polynomials.	1. Make strategic use of algebraic structure and the properties of operations to identify and create equivalent expressions by factoring polynomials limited to finding a common factor, rewriting binomials that represent a difference of two squares, and rewriting trinomials as the product of two binomials. 2. Fluently add, subtract, and multiply polynomials.
Nonlinear equations in one variable and systems of equations in two variables	1. Make strategic use of algebraic structure, the properties of operations, and/or reasoning about equality to solve: a. quadratic equations in one variable presented in a wide variety of forms. b. linear absolute value equations in one variable or simple rational and radical equations in one variable. c. polynomial equations in one variable that are written in factored form. 2. Make strategic use of algebraic structure, the properties of operations, and reasoning about equality to solve systems of linear and nonlinear equations in two variables. 3. Determine the conditions under which a quadratic equation has no real solutions, one real solution, or two real solutions. 4. Relate the solutions of a system of a linear and a nonlinear equation in two variables to the graphs of the equations in the system.	1. Make strategic use of algebraic structure, the properties of operations, and/or reasoning about equality to solve: a. quadratic equations in one variable presented in a wide variety of forms. b. linear absolute value equations in one variable or simple rational and radical equations in one variable. 2. Make strategic use of algebraic structure, the properties of operations, and reasoning about equality to solve systems of linear and nonlinear equations in two variables. 3. Determine the conditions under which a quadratic equation has no real solutions, one real solution, or two real solutions. 4. Relate the solutions of a system of a linear and a nonlinear equation in two variables to the graphs of the equations in the system.	1. Make strategic use of algebraic structure, the properties of operations, and/or reasoning about equality to solve quadratic equations in one variable presented in a wide variety of forms. 2. Make strategic use of algebraic structure, the properties of operations, and reasoning about equality to solve systems of linear and nonlinear equations in two variables. 3. Relate the solutions of a system of a linear and a nonlinear equation in two variables to the graphs of the equations in the system. 4. Given an equation or formula in two or more variables, view it as an equation in a single variable of interest where the other variables are parameters, and solve for the variable of interest.

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
Nonlinear equations in one variable and systems of equations in two variables *(continued)*	5. Given an equation or formula in two or more variables, view it as an equation in a single variable of interest where the other variables are parameters, and solve for the variable of interest. 6. Fluently solve quadratic equations in one variable, written as a quadratic expression in standard form, where using the quadratic formula or completing the square is the most efficient method for solving the equation.	5. Given an equation or formula in two or more variables, view it as an equation in a single variable of interest where the other variables are parameters, and solve for the variable of interest. 6. Fluently solve quadratic equations in one variable, written as a quadratic expression in standard form, where using the quadratic formula or completing the square is the most efficient method for solving the equation.	5. Fluently solve quadratic equations in one variable, written as a quadratic expression in standard form, where using the quadratic formula or completing the square is the most efficient method for solving the equation.
Nonlinear functions	1. Create and use quadratic or exponential functions to solve problems in a variety of contexts. 2. Identify or create an appropriate quadratic or exponential function to model a relationship between quantities. 3. For a quadratic or exponential function that represents a context: a. interpret the meaning of an input/output pair including an intercept or initial value, including situations where seeing structure provides an advantage. b. interpret the meaning of a constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. 4. For a quadratic or exponential function in a context: a. interpret a point on the graph. b. interpret parts of the graph (other than a point or intercept).	1. Create and use quadratic or exponential functions to solve problems in a variety of contexts. 2. Identify or create an appropriate quadratic or exponential function to model a relationship between quantities. 3. For a quadratic or exponential function that represents a context: a. interpret the meaning of an input/output pair including an intercept or initial value, including situations where seeing structure provides an advantage. b. interpret the meaning of a constant, variable, factor, or term based on the context, including situations where seeing structure provides an advantage. 4. For a quadratic or exponential function in a context: a. interpret a point on the graph. b. interpret parts of the graph (other than a point or intercept).	1. For a quadratic or exponential function that represents a context, interpret the meaning of an input/output pair including an intercept or initial value, including situations where seeing structure provides an advantage. 2. For a quadratic or exponential function in a context, interpret a point on the graph. 3. Make connections between a table, an algebraic representation, or a graph of a quadratic or exponential function that does not involve a transformation, not in context. 4. Make connections between a table, an algebraic representation, or a graph of a quadratic or exponential function that does not involve a transformation, in a context.

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
Nonlinear functions *(continued)*	5. Make connections between a table, an algebraic representation, or a graph of a: a. quadratic or exponential function that does not involve a transformation, not in context. b. polynomial function, simple rational function, or quadratic or exponential function that involves a transformation, not in context. 6. Make connections between a table, an algebraic representation, or a graph of a: a. quadratic or exponential function that does not involve a transformation, in a context. b. polynomial function, simple rational function, or other nonlinear function in a context, or a quadratic or exponential function that involves a transformation in a context. 7. Determine the most suitable form of the expression representing the output of the function to display key features for: a. a quadratic function. b. an exponential function. 8. Understand and use the fact that for the graph of $y = f(x)$, the solutions to $f(x) = 0$ correspond to x-intercepts of the graph and $f(0)$ corresponds to the y-intercept of the graph; make connections between the input/output pairs and points on a graph; interpret this information in a context. 9. Use function notation to represent and interpret input/output pairs: a. evaluate a nonlinear function given an input value; or, for a quadratic function, find the input value for a corresponding output. b. for exponential, polynomial, radical, and rational functions, find the input value for a corresponding output.	5. Make connections between a table, an algebraic representation, or a graph of a: a. quadratic or exponential function that does not involve a transformation, not in context. b. polynomial function, simple rational function, or quadratic or exponential function that involves a transformation, not in context. 6. Make connections between a table, an algebraic representation, or a graph of a: a. quadratic or exponential function that does not involve a transformation, in a context. b. polynomial function, simple rational function, or other nonlinear function in a context, or a quadratic or exponential function that involves a transformation in a context. 7. Determine the most suitable form of the expression representing the output of the function to display key features for: a. a quadratic function. b. an exponential function. 8. Use function notation to represent and interpret input/output pairs: a. evaluate a nonlinear function given an input value; or, for a quadratic function, find the input value for a corresponding output. b. for exponential, polynomial, radical, and rational functions, find the input value for a corresponding output.	5. Use function notation to represent and interpret input/output pairs. Evaluate a nonlinear function given an input value; or, for a quadratic function, find the input value for a corresponding output.

Table 10: Math Section Taxonomy in Detail: Problem-Solving and Data Analysis

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
Ratios, rates, proportional relationships, and units	1. Apply proportional relationships, ratios, and rates in a wide variety of contexts. Examples include, but are not limited to, scale drawings and problems in the natural and social sciences. 2. Solve problems involving derived units, including those that arise from products (e.g., kilowatt-hours) and quotients (e.g., population per square kilometer). 3. Solve problems involving: a. a one-step unit conversion. b. a multistep or multidimensional unit conversion. 4. Understand and use the fact that when two quantities are in a proportional relationship, if one changes by a scale factor, then the other also changes by the same scale factor.	1. Apply proportional relationships, ratios, and rates in a wide variety of contexts. Examples include, but are not limited to, scale drawings and problems in the natural and social sciences. 2. Solve problems involving derived units, including those that arise from products (e.g., kilowatt-hours) and quotients (e.g., population per square kilometer). 3. Solve problems involving: a. a one-step unit conversion. b. a multistep or multidimensional unit conversion. 4. Understand and use the fact that when two quantities are in a proportional relationship, if one changes by a scale factor, then the other also changes by the same scale factor.	1. Apply proportional relationships, ratios, and rates in a wide variety of contexts. Examples include, but are not limited to, scale drawings and problems in the natural and social sciences. 2. Solve problems involving derived units, including those that arise from products (e.g., kilowatt-hours) and quotients (e.g., population per square kilometer). 3. Solve problems involving: a. a one-step unit conversion. b. a multistep or multidimensional unit conversion. 4. Understand and use the fact that when two quantities are in a proportional relationship, if one changes by a scale factor, then the other also changes by the same scale factor.
Percentages	1. Use percentages to solve problems in a variety of contexts: a. including, but not limited to, discounts, interest, taxes, and tips. b. including those that involve percent increases and decreases for many different quantities. 2. Understand and use the relationship between percent change and growth factor (5% and 1.05, for example); include percentages greater than or equal to 100%.	1. Use percentages to solve problems in a variety of contexts: a. including, but not limited to, discounts, interest, taxes, and tips. b. including those that involve percent increases and decreases for many different quantities. 2. Understand and use the relationship between percent change and growth factor (5% and 1.05, for example); include percentages greater than or equal to 100%.	1. Use percentages to solve problems in a variety of contexts: a. including, but not limited to, discounts, interest, taxes, and tips. b. including those that involve percent increases and decreases for many different quantities. 2. Understand and use the relationship between percent change and growth factor (5% and 1.05, for example); include percentages greater than or equal to 100%.

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
One-variable data: Distributions and measures of center and spread	1. Analyze and interpret numerical data distributions represented with frequency tables, histograms, dot plots, and box plots. 2. For quantitative variables, calculate, compare, and interpret mean, median, and range. 3. Compare distributions using measures of center and spread, including: a. distributions with different means and the same standard deviations. b. distributions with different standard deviations. 4. Understand and describe the effect of outliers on mean and median.	1. Analyze and interpret numerical data distributions represented with frequency tables, histograms, dot plots, and box plots. 2. For quantitative variables, calculate, compare, and interpret mean, median, and range. 3. Compare distributions using measures of center and spread, including: a. distributions with different means and the same standard deviations. b. distributions with different standard deviations. 4. Understand and describe the effect of outliers on mean and median.	1. Analyze and interpret numerical data distributions represented with frequency tables, histograms, dot plots, and box plots. 2. For quantitative variables, calculate, compare, and interpret mean, median, and range. 3. Compare distributions using measures of center and spread, including distributions with different means and the same standard deviations. 4. Understand and describe the effect of outliers on mean and median.
Two-variable data: Models and scatterplots	1. Analyze and interpret data represented in a scatterplot, but do not make predictions. 2. Analyze and interpret data represented in a scatterplot to make predictions. 3. Fit linear models to data represented in a scatterplot. 4. Fit quadratic and exponential models to data represented in a scatterplot. 5. Given a relationship between two quantities, read and interpret graphs modeling the relationship. 6. Compare linear and exponential growth.	1. Analyze and interpret data represented in a scatterplot, but do not make predictions. 2. Analyze and interpret data represented in a scatterplot to make predictions. 3. Fit linear models to data represented in a scatterplot. 4. Fit quadratic and exponential models to data represented in a scatterplot. 5. Given a relationship between two quantities, read and interpret graphs modeling the relationship. 6. Compare linear and exponential growth.	1. Analyze and interpret data represented in a scatterplot, but do not make predictions. 2. Fit linear models to data represented in a scatterplot. 3. Given a relationship between two quantities, read and interpret graphs modeling the relationship.
Probability and conditional probability	Use one- and two-way tables, area models, and other representations to find relative frequency, probabilities, and conditional probabilities. 1. Calculate, express, or interpret the probability or conditional probability of an event using a data display showing frequencies for a single variable, a two-way table, an area model, or a description of a situation. Infrequently, given a probability, determine an unknown number in a data display showing frequencies for a single variable, a two-way table, or a description of a situation, including using a probability to determine the frequency of an event.	Use one- and two-way tables, area models, and other representations to find relative frequency, probabilities, and conditional probabilities. 1. Calculate, express, or interpret the probability or conditional probability of an event using a data display showing frequencies for a single variable, a two-way table, an area model, or a description of a situation. Infrequently, given a probability, determine an unknown number in a data display showing frequencies for a single variable, a two-way table, or a description of a situation, including using a probability to determine the frequency of an event.	Use one- and two-way tables, area models, and other representations to find relative frequency, probabilities, and conditional probabilities. 1. Calculate, express, or interpret the probability or conditional probability of an event using a data display showing frequencies for a single variable, a two-way table, an area model, or a description of a situation. Infrequently, given a probability, determine an unknown number in a data display showing frequencies for a single variable, a two-way table, or a description of a situation, including using a probability to determine the frequency of an event.

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
Inference from sample statistics and margin of error	1. Use sample mean and sample proportion to estimate population mean and population proportion. 2. Interpret margin of error. Understand that a larger sample size generally leads to a smaller margin of error.	1. Use sample mean and sample proportion to estimate population mean and population proportion.	
Evaluating statistical claims: Observational studies and experiments	1. With random samples, identify or describe which population the results can be extended to. Given a description of a study with or without random assignment, determine whether there is evidence for a causal relationship. 2. Understand why random assignment provides evidence for a causal relationship in an experimental study. 3. Understand issues related to sampling methods and why a result can be extended only to the population from which the sample was selected.		

Table 11: Math Section Taxonomy in Detail: Geometry (and Trigonometry)

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
Area and volume	1. Solve real-world and mathematical problems about the: a. area or perimeter of a geometric figure or an object that can be modeled by a geometric figure using given information. b. surface area or volume of a geometric figure or an object that can be modeled by a geometric figure using given information such as length, area, surface area, or volume. 2. Apply knowledge that changing by a scale factor of k changes all lengths by a factor of k, changes all areas by a factor of k^2, and changes all volumes by a factor of k^3 . 3. Demonstrate procedural fluency by selecting the correct: a. area formula and correctly calculating a specified value. b. surface area or volume formula and correctly calculating a specified value.	1. Solve real-world and mathematical problems about the: a. area or perimeter of a geometric figure or an object that can be modeled by a geometric figure using given information. b. surface area or volume of a geometric figure or an object that can be modeled by a geometric figure using given information such as length, area, surface area, or volume. 2. Apply knowledge that changing by a scale factor of k changes all lengths by a factor of k, changes all areas by a factor of k^2, and changes all volumes by a factor of k^3. 3. Demonstrate procedural fluency by selecting the correct: a. area formula and correctly calculating a specified value. b. surface area or volume formula and correctly calculating a specified value.	1. Solve real-world and mathematical problems about the: a. area or perimeter of a geometric figure or an object that can be modeled by a geometric figure using given information. b. surface area or volume of a geometric figure or an object that can be modeled by a geometric figure using given information such as length, area, surface area, or volume. 2. Apply knowledge that changing by a scale factor of k changes all lengths by a factor of k, changes all areas by a factor of k^2, and changes all volumes by a factor of k^3. 3. Demonstrate procedural fluency by selecting the correct: a. area formula and correctly calculating a specified value. b. surface area or volume formula and correctly calculating a specified value.
Lines, angles, and triangles	1. Use concepts and theorems relating to congruence and similarity of triangles to solve problems. 2. Determine which statements may be required to prove certain relationships or to satisfy a given theorem. 3. Apply knowledge that changing by a scale factor of k changes all lengths by a factor of k, but angle measures remain unchanged. 4. Know and directly apply relevant theorems such as the: a. triangle angle sum theorem. b. vertical angle theorem and the relationship of angles formed when a transversal cuts parallel lines.	1. Use concepts and theorems relating to congruence and similarity of triangles to solve problems. 2. Determine which statements may be required to prove certain relationships or to satisfy a given theorem. 3. Apply knowledge that changing by a scale factor of k changes all lengths by a factor of k, but angle measures remain unchanged. 4. Know and directly apply relevant theorems such as the: a. triangle angle sum theorem. b. vertical angle theorem and the relationship of angles formed when a transversal cuts parallel lines.	1. Know and directly apply the triangle angle sum theorem.

Content Dimension	SAT Description	PSAT/NMSQT and PSAT 10 Description	PSAT 8/9 Description
Right triangles and trigonometry	1. Solve problems in a variety of contexts using: a. the Pythagorean theorem. b. properties of special right triangles. c. right triangle trigonometry. 2. Use similarity to calculate values of sine, cosine, and tangent. 3. Solve problems using the relationship between sine and cosine of complementary angles.	1. Solve problems in a variety of contexts using: a. the Pythagorean theorem. b. properties of special right triangles. c. right triangle trigonometry.	1. Solve problems in a variety of contexts using the Pythagorean theorem.
Circles	1. Use definitions, properties, and theorems relating to circles and parts of circles such as radii, diameters, tangents, angles, arc lengths, and sector areas to solve problems. 2. Solve problems using either radian measure or trigonometric ratios in the unit circle. 3. Create an equation to represent a circle in the *xy*-plane. 4. Describe how a change to the equation representing a circle affects the graph of the circle in the *xy*-plane or how a change to the graph of a circle affects the equation that represents the circle. 5. Understand that the ordered pairs that satisfy an equation of the form $(x-h)^2+(y-k)^2=r^2$ form a circle when plotted in the *xy*-plane. 6. Convert between angle measures in degrees and radians. 7. Complete the square in an equation representing a circle to determine properties of the circle when it is graphed in the *xy*-plane and use the distance formula in problems related to circles.		

Appendix B: Alignments of English Language Arts/Reading Standards to Digital SAT Suite

The following tables detail the Texas CCRS and TEKS–digital SAT Suite alignments using the Texas standards as the organizing principle.

Table 12: Grade 8 TEKS Aligned to Digital PSAT 8/9

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Developing and sustaining foundational language skills	ENG.8.2.A	Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--vocabulary. The student uses newly acquired vocabulary expressively. The student is expected to: (A) use print or digital resources to determine the meaning, syllabication, pronunciation, word origin, and part of speech;										
Developing and sustaining foundational language skills	ENG.8.2.B	use context within or beyond a paragraph to clarify the meaning of unfamiliar or ambiguous words; and	✓	✓		✓						
Developing and sustaining foundational language skills	ENG.8.2.C	determine the meaning and usage of grade-level academic English words derived from Greek and Latin roots such as ast, qui, path, mand/mend, and duc.										
Developing and sustaining foundational language skills	ENG.8.3	Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--fluency. The student reads grade-level text with fluency and comprehension. The student is expected to adjust fluency when reading grade-level text based on the reading purpose.	✓	✓	✓	✓	✓	✓				

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Developing and sustaining foundational language skills	ENG.8.4	Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--self-sustained reading. The student reads grade-appropriate texts independently. The student is expected to self-select text and read independently for a sustained period of time.										
Comprehension skills	ENG.8.5.A	Comprehension skills: listening, speaking, reading, writing, and thinking using multiple texts. The student uses metacognitive skills to both develop and deepen comprehension of increasingly complex texts. The student is expected to: (A) establish purpose for reading assigned and self-selected texts;										
Comprehension skills	ENG.8.5.B	generate questions about text before, during, and after reading to deepen understanding and gain information;										
Comprehension skills	ENG.8.5.C	make and correct or confirm predictions using text features, characteristics of genre, and structures;										
Comprehension skills	ENG.8.5.D	create mental images to deepen understanding;										
Comprehension skills	ENG.8.5.E	make connections to personal experiences, ideas in other texts, and society;										
Comprehension skills	ENG.8.5.F	make inferences and use evidence to support understanding;		✓	✓							
Comprehension skills	ENG.8.5.G	evaluate details read to determine key ideas;	✓									
Comprehension skills	ENG.8.5.H	synthesize information to create new understanding; and						✓				
Comprehension skills	ENG.8.5.I	monitor comprehension and make adjustments such as re-reading, using background knowledge, asking questions, and annotating when understanding breaks down.										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Response skills	ENG.8.6.A	Response skills: listening, speaking, reading, writing, and thinking using multiple texts. The student responds to an increasingly challenging variety of sources that are read, heard, or viewed. The student is expected to: (A) describe personal connections to a variety of sources, including self-selected texts;										
Response skills	ENG.8.6.B	write responses that demonstrate understanding of texts, including comparing sources within and across genres;										
Response skills	ENG.8.6.C	use text evidence to support an appropriate response;			✓							
Response skills	ENG.8.6.D	paraphrase and summarize texts in ways that maintain meaning and logical order;	✓	✓	✓							
Response skills	ENG.8.6.E	interact with sources in meaningful ways such as notetaking, annotating, freewriting, or illustrating;										
Response skills	ENG.8.6.F	respond using newly acquired vocabulary as appropriate;				✓			✓	✓		
Response skills	ENG.8.6.G	discuss and write about the explicit or implicit meanings of text;										
Response skills	ENG.8.6.H	respond orally or in writing with appropriate register, vocabulary, tone, and voice;							✓	✓		
Response skills	ENG.8.6.I	reflect on and adjust responses as new evidence is presented; and			✓			✓				
Response skills	ENG.8.6.J	defend or challenge the authors' claims using relevant text evidence.			✓							
Multiple genres	ENG.8.7.A	Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts--literary elements. The student recognizes and analyzes literary elements within and across increasingly complex traditional, contemporary, classical, and diverse literary texts. The student is expected to: (A) analyze how themes are developed through the interaction of characters and events;	✓				✓					

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Multiple genres	ENG.8.7.B	analyze how characters' motivations and behaviors influence events and resolution of the conflict;	✓				✓					
Multiple genres	ENG.8.7.C	analyze non-linear plot development such as flashbacks, foreshadowing, subplots, and parallel plot structures and compare it to linear plot development; and										
Multiple genres	ENG.8.7.D	explain how the setting influences the values and beliefs of characters.										
Multiple genres	ENG.8.8.A	Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts--genres. The student recognizes and analyzes genre-specific characteristics, structures, and purposes within and across increasingly complex traditional, contemporary, classical, and diverse texts. The student is expected to: (A) demonstrate knowledge of literary genres such as realistic fiction, adventure stories, historical fiction, mysteries, humor, fantasy, science fiction, and short stories;										
Multiple genres	ENG.8.8.B	analyze the effect of graphical elements such as punctuation and line length in poems across a variety of poetic forms such as epic, lyric, and humorous poetry;										
Multiple genres	ENG.8.8.C	analyze how playwrights develop dramatic action through the use of acts and scenes;										
Multiple genres	ENG.8.8.D.i	analyze characteristics and structural elements of informational text, including: (i) the controlling idea or thesis with supporting evidence;	✓		✓		✓					
Multiple genres	ENG.8.8.D.ii	features such as footnotes, endnotes, and citations; and										
Multiple genres	ENG.8.8.D.iii	multiple organizational patterns within a text to develop the thesis;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Multiple genres	ENG.8.8.E.i	analyze characteristics and structures of argumentative text by: (i) identifying the claim and analyzing the argument;	✓				✓					
Multiple genres	ENG.8.8.E.ii	identifying and explaining the counter argument; and						✓				
Multiple genres	ENG.8.8.E.iii	identifying the intended audience or reader; and					✓					
Multiple genres	ENG.8.8.F	analyze characteristics of multimodal and digital texts.										
Author's purpose and craft	ENG.8.9.A	Author's purpose and craft: listening, speaking, reading, writing, and thinking using multiple texts. The student uses critical inquiry to analyze the authors' choices and how they influence and communicate meaning within a variety of texts. The student analyzes and applies author's craft purposefully in order to develop his or her own products and performances. The student is expected to: (A) explain the author's purpose and message within a text;					✓					
Author's purpose and craft	ENG.8.9.B	analyze how the use of text structure contributes to the author's purpose;					✓					
Author's purpose and craft	ENG.8.9.C	analyze the author's use of print and graphic features to achieve specific purposes;										
Author's purpose and craft	ENG.8.9.D	describe how the author's use of figurative language such as extended metaphor achieves specific purposes;					✓					
Author's purpose and craft	ENG.8.9.E	identify and analyze the use of literary devices, including multiple points of view and irony;					✓					
Author's purpose and craft	ENG.8.9.F	analyze how the author's use of language contributes to the mood, voice, and tone; and				✓			✓			
Author's purpose and craft	ENG.8.9.G	explain the purpose of rhetorical devices such as analogy and juxtaposition and of logical fallacies such as bandwagon appeals and circular reasoning.					✓					

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Composition	ENG.8.10.A	Composition: listening, speaking, reading, writing, and thinking using multiple texts--writing process. The student uses the writing process recursively to compose multiple texts that are legible and uses appropriate conventions. The student is expected to: (A) plan a first draft by selecting a genre appropriate for a particular topic, purpose, and audience using a range of strategies such as discussion, background reading, and personal interests;										
Composition	ENG.8.10.B.i	develop drafts into a focused, structured, and coherent piece of writing by: (i) organizing with purposeful structure, including an introduction, transitions, coherence within and across paragraphs, and a conclusion; and								✓		
Composition	ENG.8.10.B.ii	developing an engaging idea reflecting depth of thought with specific facts, details, and examples;										
Composition	ENG.8.10.C	revise drafts for clarity, development, organization, style, word choice, and sentence variety;							✓	✓		
Composition	ENG.8.10.D.i	edit drafts using standard English conventions, including: (i) complete complex sentences with subject-verb agreement and avoidance of splices, run-ons, and fragments;									✓	
Composition	ENG.8.10.D.ii	consistent, appropriate use of verb tenses and active and passive voice;										✓
Composition	ENG.8.10.D.iii	prepositions and prepositional phrases and their influence on subject-verb agreement;										✓
Composition	ENG.8.10.D.iv	pronoun-antecedent agreement;										✓
Composition	ENG.8.10.D.v	correct capitalization;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Composition	ENG.8.10.D.vi	punctuation, including commas in nonrestrictive phrases and clauses, semicolons, colons, and parentheses; and									✓	
Composition	ENG.8.10.D.vii	correct spelling, including commonly confused terms such as its/it's, affect/effect, there/their/they're, and to/two/too; and										✓
Composition	ENG.8.10.E	publish written work for appropriate audiences.										
Composition	ENG.8.11.A	Composition: listening, speaking, reading, writing, and thinking using multiple texts--genres. The student uses genre characteristics and craft to compose multiple texts that are meaningful. The student is expected to: (A) compose literary texts such as personal narratives, fiction, and poetry using genre characteristics and craft;										
Composition	ENG.8.11.B	compose informational texts, including multi-paragraph essays that convey information about a topic, using a clear controlling idea or thesis statement and genre characteristics and craft;							✓	✓		
Composition	ENG.8.11.C	compose multi-paragraph argumentative texts using genre characteristics and craft; and										
Composition	ENG.8.11.D	compose correspondence that reflects an opinion, registers a complaint, or requests information in a business or friendly structure.										

Table 13: English I TEKS Aligned to Digital PSAT 8/9

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Developing and sustaining foundational language skills	ENG.I.2.A	Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--vocabulary. The student uses newly acquired vocabulary expressively. The student is expected to: (A) use print or digital resources such as glossaries or technical dictionaries to clarify and validate understanding of the precise and appropriate meaning of technical or discipline-based vocabulary;										
Developing and sustaining foundational language skills	ENG.I.2.B	analyze context to distinguish between the denotative and connotative meanings of words; and	✓	✓		✓						
Developing and sustaining foundational language skills	ENG.I.2.C	determine the meaning of foreign words or phrases used frequently in English such as bona fide, caveat, carte blanche, tête-à-tête, bon appétit, and quid pro quo.										
Developing and sustaining foundational language skills	ENG.I.3	Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--self-sustained reading. The student reads grade-appropriate texts independently. The student is expected to self-select text and read independently for a sustained period of time.										
Comprehension skills	ENG.I.4.A	Comprehension skills: listening, speaking, reading, writing, and thinking using multiple texts. The student uses metacognitive skills to both develop and deepen comprehension of increasingly complex texts. The student is expected to: (A) establish purpose for reading assigned and self-selected texts;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Comprehension skills	ENG.I.4.B	generate questions about text before, during, and after reading to deepen understanding and gain information;										
Comprehension skills	ENG.I.4.C	make and correct or confirm predictions using text features, characteristics of genre, and structures;										
Comprehension skills	ENG.I.4.D	create mental images to deepen understanding;										
Comprehension skills	ENG.I.4.E	make connections to personal experiences, ideas in other texts, and society;										
Comprehension skills	ENG.I.4.F	make inferences and use evidence to support understanding;		✓	✓							
Comprehension skills	ENG.I.4.G	evaluate details read to determine key ideas;	✓									
Comprehension skills	ENG.I.4.H	synthesize information from two texts to create new understanding; and						✓				
Comprehension skills	ENG.I.4.I	monitor comprehension and make adjustments such as re-reading, using background knowledge, asking questions, and annotating when understanding breaks down.										
Response skills	ENG.I.5.A	Response skills: listening, speaking, reading, writing, and thinking using multiple texts. The student responds to an increasingly challenging variety of sources that are read, heard, or viewed. The student is expected to: (A) describe personal connections to a variety of sources, including self-selected texts;										
Response skills	ENG.I.5.B	write responses that demonstrate understanding of texts, including comparing texts within and across genres;										
Response skills	ENG.I.5.C	use text evidence and original commentary to support a comprehensive response;			✓							
Response skills	ENG.I.5.D	paraphrase and summarize texts in ways that maintain meaning and logical order;	✓	✓	✓							
Response skills	ENG.I.5.E	interact with sources in meaningful ways such as notetaking, annotating, freewriting, or illustrating;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Response skills	ENG.I.5.F	respond using acquired content and academic vocabulary as appropriate;	✓	✓	✓	✓			✓	✓		
Response skills	ENG.I.5.G	discuss and write about the explicit or implicit meanings of text;										
Response skills	ENG.I.5.H	respond orally or in writing with appropriate register, vocabulary, tone, and voice;							✓	✓		
Response skills	ENG.I.5.I	reflect on and adjust responses when valid evidence warrants; and			✓			✓				
Response skills	ENG.I.5.J	defend or challenge the authors' claims using relevant text evidence.			✓							
Multiple genres	ENG.I.6.A	Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts--literary elements. The student recognizes and analyzes literary elements within and across increasingly complex traditional, contemporary, classical, and diverse literary texts. The student is expected to: (A) analyze how themes are developed through characterization and plot in a variety of literary texts;	✓				✓					
Multiple genres	ENG.I.6.B	analyze how authors develop complex yet believable characters in works of fiction through a range of literary devices, including character foils;	✓				✓					
Multiple genres	ENG.I.6.C	analyze non-linear plot development such as flashbacks, foreshadowing, subplots, and parallel plot structures and compare it to linear plot development; and										
Multiple genres	ENG.I.6.D	analyze how the setting influences the theme.										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Multiple genres	ENG.I.7.A	Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts--genres. The student recognizes and analyzes genre-specific characteristics, structures, and purposes within and across increasingly complex traditional, contemporary, classical, and diverse texts. The student is expected to: (A) read and respond to American, British, and world literature;	✓		✓	✓	✓					
Multiple genres	ENG.I.7.B	analyze the structure, prosody, and graphic elements such as line length and word position in poems across a variety of poetic forms;										
Multiple genres	ENG.I.7.C	analyze the function of dramatic conventions such as asides, soliloquies, dramatic irony, and satire;										
Multiple genres	ENG.I.7.D.i	analyze characteristics and structural elements of informational texts such as: (i) clear thesis, relevant supporting evidence, pertinent examples, and conclusion; and	✓		✓		✓					
Multiple genres	ENG.I.7.D.ii	multiple organizational patterns within a text to develop the thesis;										
Multiple genres	ENG.I.7.E.i	analyze characteristics and structural elements of argumentative texts such as: (i) clear arguable claim, appeals, and convincing conclusion;	✓				✓					
Multiple genres	ENG.I.7.E.ii	various types of evidence and treatment of counterarguments, including concessions and rebuttals; and			✓			✓				
Multiple genres	ENG.I.7.E.iii	identifiable audience or reader; and					✓					
Multiple genres	ENG.I.7.F	analyze characteristics of multimodal and digital texts.										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Author's purpose and craft	ENG.I.8.A	Author's purpose and craft: listening, speaking, reading, writing, and thinking using multiple texts. The student uses critical inquiry to analyze the authors' choices and how they influence and communicate meaning within a variety of texts. The student analyzes and applies author's craft purposefully in order to develop his or her own products and performances. The student is expected to: (A) analyze the author's purpose, audience, and message within a text;					✓					
Author's purpose and craft	ENG.I.8.B	analyze use of text structure to achieve the author's purpose;					✓					
Author's purpose and craft	ENG.I.8.C	evaluate the author's use of print and graphic features to achieve specific purposes;										
Author's purpose and craft	ENG.I.8.D	analyze how the author's use of language achieves specific purposes;					✓					
Author's purpose and craft	ENG.I.8.E	analyze the use of literary devices such as irony and oxymoron to achieve specific purposes;					✓					
Author's purpose and craft	ENG.I.8.F	analyze how the author's diction and syntax contribute to the mood, voice, and tone of a text; and				✓			✓			
Author's purpose and craft	ENG.I.8.G	explain the purpose of rhetorical devices such as understatement and overstatement and the effect of logical fallacies such as straw man and red herring arguments.					✓					
Composition	ENG.I.9.A	Composition: listening, speaking, reading, writing, and thinking using multiple texts--writing process. The student uses the writing process recursively to compose multiple texts that are legible and use appropriate conventions. The student is expected to: (A) plan a piece of writing appropriate for various purposes and audiences by generating ideas through a range of strategies such as brainstorming, journaling, reading, or discussing;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Composition	ENG.I.9.B.i	develop drafts into a focused, structured, and coherent piece of writing in timed and open-ended situations by: (i) using an organizing structure appropriate to purpose, audience, topic, and context; and								✓		
Composition	ENG.I.9.B.ii	developing an engaging idea reflecting depth of thought with specific details, examples, and commentary;										
Composition	ENG.I.9.C	revise drafts to improve clarity, development, organization, style, diction, and sentence effectiveness, including use of parallel constructions and placement of phrases and dependent clauses;							✓	✓		
Composition	ENG.I.9.D.i	edit drafts using standard English conventions, including: (i) a variety of complete, controlled sentences and avoidance of unintentional splices, run-ons, and fragments;									✓	
Composition	ENG.I.9.D.ii	consistent, appropriate use of verb tense and active and passive voice;										✓
Composition	ENG.I.9.D.iii	pronoun-antecedent agreement;										✓
Composition	ENG.I.9.D.iv	correct capitalization;										
Composition	ENG.I.9.D.v	punctuation, including commas, semicolons, colons, and dashes to set off phrases and clauses as appropriate; and									✓	
Composition	ENG.I.9.D.vi	correct spelling; and										✓
Composition	ENG.I.9.E	publish written work for appropriate audiences.										
Composition	ENG.I.10.A	Composition: listening, speaking, reading, writing, and thinking using multiple texts--genres. The student uses genre characteristics and craft to compose multiple texts that are meaningful. The student is expected to: (A) compose literary texts such as fiction and poetry using genre characteristics and craft;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Composition	ENG.I.10.B	compose informational texts such as explanatory essays, reports, and personal essays using genre characteristics and craft;							✓	✓		
Composition	ENG.I.10.C	compose argumentative texts using genre characteristics and craft; and							✓	✓		
Composition	ENG.I.10.D	compose correspondence in a professional or friendly structure.										

Table 14: English II TEKS Aligned to Digital PSAT/NMSQT and PSAT 10

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Developing and sustaining foundational language skills	ENG.II.2.A	Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--vocabulary. The student uses newly acquired vocabulary expressively. The student is expected to: (A) use print or digital resources such as glossaries or technical dictionaries to clarify and validate understanding of the precise and appropriate meaning of technical or discipline-based vocabulary;										
Developing and sustaining foundational language skills	ENG.II.2.B	analyze context to distinguish among denotative, connotative, and figurative meanings of words; and	✓	✓		✓						
Developing and sustaining foundational language skills	ENG.II.2.C	determine the meaning of foreign words or phrases used frequently in English such as pas de deux, status quo, déjà vu, avant-garde, and coup d'état.										
Developing and sustaining foundational language skills	ENG.II.3	Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--self-sustained reading. The student reads grade-appropriate texts independently. The student is expected to self-select text and read independently for a sustained period of time.										
Comprehension skills	ENG.II.4.A	Comprehension skills: listening, speaking, reading, writing, and thinking using multiple texts. The student uses metacognitive skills to both develop and deepen comprehension of increasingly complex texts. The student is expected to: (A) establish purpose for reading assigned and self-selected texts;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Comprehension skills	ENG.II.4.B	generate questions about text before, during, and after reading to deepen understanding and gain information;										
Comprehension skills	ENG.II.4.C	make and correct or confirm predictions using text features, characteristics of genre, and structures;										
Comprehension skills	ENG.II.4.D	create mental images to deepen understanding;										
Comprehension skills	ENG.II.4.E	make connections to personal experiences, ideas in other texts, and society;										
Comprehension skills	ENG.II.4.F	make inferences and use evidence to support understanding;		✓	✓							
Comprehension skills	ENG.II.4.G	evaluate details read to determine key ideas;	✓									
Comprehension skills	ENG.II.4.H	synthesize information from multiple texts to create new understanding; and						✓				
Comprehension skills	ENG.II.4.I	monitor comprehension and make adjustments such as re-reading, using background knowledge, asking questions, and annotating when understanding breaks down.										
Response skills	ENG.II.5.A	Response skills: listening, speaking, reading, writing, and thinking using multiple texts. The student responds to an increasingly challenging variety of sources that are read, heard, or viewed. The student is expected to: (A) describe personal connections to a variety of sources, including self-selected texts;										
Response skills	ENG.II.5.B	write responses that demonstrate understanding of texts, including comparing texts within and across genres;										
Response skills	ENG.II.5.C	use text evidence and original commentary to support an interpretive response;			✓							
Response skills	ENG.II.5.D	paraphrase and summarize texts in ways that maintain meaning and logical order;	✓	✓	✓							
Response skills	ENG.II.5.E	interact with sources in meaningful ways such as notetaking, annotating, freewriting, or illustrating;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Response skills	ENG.II.5.F	respond using acquired content and academic vocabulary as appropriate;	✓	✓	✓	✓			✓	✓		
Response skills	ENG.II.5.G	discuss and write about the explicit or implicit meanings of text;										
Response skills	ENG.II.5.H	respond orally or in writing with appropriate register, vocabulary, tone, and voice;							✓	✓		
Response skills	ENG.II.5.I	reflect on and adjust responses when valid evidence warrants; and			✓			✓				
Response skills	ENG.II.5.J	defend or challenge the authors' claims using relevant text evidence.			✓							
Multiple genres	ENG.II.6.A	Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts--literary elements. The student recognizes and analyzes literary elements within and across increasingly complex traditional, contemporary, classical, and diverse literary texts. The student is expected to: (A) analyze how themes are developed through characterization and plot, including comparing similar themes in a variety of literary texts representing different cultures;	✓				✓					
Multiple genres	ENG.II.6.B	analyze how authors develop complex yet believable characters, including archetypes, through historical and cultural settings and events;	✓				✓					
Multiple genres	ENG.II.6.C	analyze isolated scenes and their contribution to the success of the plot as a whole; and										
Multiple genres	ENG.II.6.D	analyze how historical and cultural settings influence characterization, plot, and theme across texts.										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Multiple genres	ENG.II.7.A	Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts--genres. The student recognizes and analyzes genre-specific characteristics, structures, and purposes within and across increasingly complex traditional, contemporary, classical, and diverse texts. The student is expected to: (A) read and analyze world literature across literary periods;	✓		✓	✓	✓					
Multiple genres	ENG.II.7.B	analyze the effects of metrics; rhyme schemes; types of rhymes such as end, internal, slant, and eye; and other conventions in poems across a variety of poetic forms;										
Multiple genres	ENG.II.7.C	analyze the function of dramatic conventions such as asides, soliloquies, dramatic irony, and satire;										
Multiple genres	ENG.II.7.D.i	analyze characteristics and structural elements of informational texts such as: (i) clear thesis, relevant supporting evidence, pertinent examples, and conclusion; and	✓		✓		✓					
Multiple genres	ENG.II.7.D.ii	the relationship between organizational design and thesis;					✓					
Multiple genres	ENG.II.7.E.i	analyze characteristics and structural elements of argumentative texts such as: (i) clear arguable claim, appeals, and convincing conclusion;	✓				✓					
Multiple genres	ENG.II.7.E.ii	various types of evidence and treatment of counterarguments, including concessions and rebuttals; and			✓			✓				
Multiple genres	ENG.II.7.E.iii	identifiable audience or reader; and					✓					
Multiple genres	ENG.II.7.F	analyze characteristics of multimodal and digital texts.										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Author's purpose and craft	ENG.II.8.A	Author's purpose and craft: listening, speaking, reading, writing, and thinking using multiple texts. The student uses critical inquiry to analyze the authors' choices and how they influence and communicate meaning within a variety of texts. The student analyzes and applies author's craft purposefully in order to develop his or her own products and performances. The student is expected to: (A) analyze the author's purpose, audience, and message within a text;					✓					
Author's purpose and craft	ENG.II.8.B	analyze use of text structure to achieve the author's purpose;					✓					
Author's purpose and craft	ENG.II.8.C	evaluate the author's use of print and graphic features to achieve specific purposes;										
Author's purpose and craft	ENG.II.8.D	analyze how the author's use of language informs and shapes the perception of readers;					✓					
Author's purpose and craft	ENG.II.8.E	analyze the use of literary devices such as irony, sarcasm, and motif to achieve specific purposes;					✓					
Author's purpose and craft	ENG.II.8.F	analyze how the author's diction and syntax contribute to the mood, voice, and tone of a text; and				✓			✓			
Author's purpose and craft	ENG.II.8.G	analyze the purpose of rhetorical devices such as appeals, antithesis, parallelism, and shifts and the effects of logical fallacies.					✓					
Composition	ENG.II.9.A	Composition: listening, speaking, reading, writing, and thinking using multiple texts--writing process. The student uses the writing process recursively to compose multiple texts that are legible and use appropriate conventions. The student is expected to: (A) plan a piece of writing appropriate for various purposes and audiences by generating ideas through a range of strategies such as brainstorming, journaling, reading, or discussing;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Composition	ENG.II.9.B.i	develop drafts into a focused, structured, and coherent piece of writing in timed and open-ended situations by: (i) using an organizing structure appropriate to purpose, audience, topic, and context; and								✓		
Composition	ENG.II.9.B.ii	developing an engaging idea reflecting depth of thought with specific details, examples, and commentary;										
Composition	ENG.II.9.C	revise drafts to improve clarity, development, organization, style, diction, and sentence effectiveness, including use of parallel constructions and placement of phrases and dependent clauses;							✓	✓		
Composition	ENG.II.9.D.i	edit drafts using standard English conventions, including: (i) a variety of complete, controlled sentences and avoidance of unintentional splices, run-ons, and fragments;									✓	
Composition	ENG.II.9.D.ii	consistent, appropriate use of verb tense and active and passive voice;										✓
Composition	ENG.II.9.D.iii	pronoun-antecedent agreement;										✓
Composition	ENG.II.9.D.iv	correct capitalization;										
Composition	ENG.II.9.D.v	punctuation, including commas, semicolons, colons, dashes, and parentheses to set off phrases and clauses as appropriate; and									✓	
Composition	ENG.II.9.D.vi	correct spelling; and										✓
Composition	ENG.II.9.E	publish written work for appropriate audiences.										
Composition	ENG.II.10.A	Composition: listening, speaking, reading, writing, and thinking using multiple texts--genres. The student uses genre characteristics and craft to compose multiple texts that are meaningful. The student is expected to: (A) compose literary texts such as fiction and poetry using genre characteristics and craft;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Composition	ENG.II.10.B	compose informational texts such as explanatory essays, reports, and personal essays using genre characteristics and craft;							✓	✓		
Composition	ENG.II.10.C	compose argumentative texts using genre characteristics and craft; and							✓	✓		
Composition	ENG.II.10.D	compose correspondence in a professional or friendly structure.										

Table 15: English III TEKS Aligned to Digital SAT and Digital PSAT/NMSQT and PSAT 10

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Developing and sustaining foundational language skills	ENG.III.2.A	Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--vocabulary. The student uses newly acquired vocabulary expressively. The student is expected to: (A) use print or digital resources to clarify and validate understanding of multiple meanings of advanced vocabulary;										
Developing and sustaining foundational language skills	ENG.III.2.B	analyze context to draw conclusions about nuanced meanings such as in imagery; and	✓	✓		✓						
Developing and sustaining foundational language skills	ENG.III.2.C	determine the meaning of foreign words or phrases used frequently in English such as ad hoc, faux pas, non sequitur, and modus operandi.										
Developing and sustaining foundational language skills	ENG.III.3	Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--self-sustained reading. The student reads grade-appropriate texts independently. The student is expected to self-select text and read independently for a sustained period of time.										
Comprehension skills	ENG.III.4.A	Comprehension skills: listening, speaking, reading, writing, and thinking using multiple texts. The student uses metacognitive skills to both develop and deepen comprehension of increasingly complex texts. The student is expected to: (A) establish purpose for reading assigned and self-selected texts;										
Comprehension skills	ENG.III.4.B	generate questions about text before, during, and after reading to deepen understanding and gain information;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Comprehension skills	ENG.III.4.C	make and correct or confirm predictions using text features, characteristics of genre, and structures;										
Comprehension skills	ENG.III.4.D	create mental images to deepen understanding;										
Comprehension skills	ENG.III.4.E	make connections to personal experiences, ideas in other texts, and society;										
Comprehension skills	ENG.III.4.F	make inferences and use evidence to support understanding;		✓	✓							
Comprehension skills	ENG.III.4.G	evaluate details read to understand key ideas;	✓									
Comprehension skills	ENG.III.4.H	synthesize information from a variety of text types to create new understanding; and						✓				
Comprehension skills	ENG.III.4.I	monitor comprehension and make adjustments such as re-reading, using background knowledge, asking questions, annotating, and using outside sources when understanding breaks down.										
Response skills	ENG.III.5.A	Response skills: listening, speaking, reading, writing, and thinking using multiple texts. The student responds to an increasingly challenging variety of sources that are read, heard, or viewed. The student is expected to: (A) describe personal connections to a variety of sources, including self-selected texts;										
Response skills	ENG.III.5.B	write responses that demonstrate analysis of texts, including comparing texts within and across genres;										
Response skills	ENG.III.5.C	use text evidence and original commentary to support an analytic response;			✓							
Response skills	ENG.III.5.D	paraphrase and summarize texts in ways that maintain meaning and logical order;	✓	✓	✓							
Response skills	ENG.III.5.E	interact with sources in meaningful ways such as notetaking, annotating, freewriting, or illustrating;										
Response skills	ENG.III.5.F	respond using acquired content and academic vocabulary as appropriate;	✓	✓	✓	✓			✓	✓		

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Response skills	ENG.III.5.G	discuss and write about the explicit and implicit meanings of text;										
Response skills	ENG.III.5.H	respond orally or in writing with appropriate register and effective vocabulary, tone, and voice;							✓	✓		
Response skills	ENG.III.5.I	reflect on and adjust responses when valid evidence warrants; and			✓			✓				
Response skills	ENG.III.5.J	defend or challenge the authors' claims using relevant text evidence.			✓							
Multiple genres	ENG.III.6.A	Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts--literary elements. The student recognizes and analyzes literary elements within and across increasingly complex traditional, contemporary, classical, and diverse literary texts. The student is expected to: (A) analyze relationships among thematic development, characterization, point of view, significance of setting, and plot in a variety of literary texts;	✓				✓					
Multiple genres	ENG.III.6.B	analyze how characters' behaviors and underlying motivations contribute to moral dilemmas that influence the plot and theme;										
Multiple genres	ENG.III.6.C	evaluate how different literary elements shape the author's portrayal of the plot; and										
Multiple genres	ENG.III.6.D	analyze how the historical, social, and economic context of setting(s) influences the plot, characterization, and theme.										
Multiple genres	ENG.III.7.A	Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts--genres. The student recognizes and analyzes genre-specific characteristics, structures, and purposes within and across increasingly complex traditional, contemporary, classical, and diverse texts. The student is expected to: (A) read and analyze American literature across literary periods;	✓		✓	✓	✓					

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Multiple genres	ENG.III.7.B	analyze relationships among characteristics of poetry, including stanzas, line breaks, speaker, and sound devices in poems across a variety of poetic forms;					✓					
Multiple genres	ENG.III.7.C	analyze how the relationships among dramatic elements advance the plot;										
Multiple genres	ENG.III.7.D.i	analyze characteristics and structural elements of informational texts such as: (i) clear thesis, strong supporting evidence, pertinent examples, commentary, summary, and conclusion; and	✓		✓		✓					
Multiple genres	ENG.III.7.D.ii	the relationship between organizational design and author's purpose;					✓					
Multiple genres	ENG.III.7.E.i	analyze characteristics and structural elements of argumentative texts such as: (i) clear arguable thesis, appeals, structure of the argument, convincing conclusion, and call to action;	✓				✓					
Multiple genres	ENG.III.7.E.ii	various types of evidence and treatment of counterarguments, including concessions and rebuttals; and			✓			✓				
Multiple genres	ENG.III.7.E.iii	identifiable audience or reader; and					✓					
Multiple genres	ENG.III.7.F	analyze the effectiveness of characteristics of multimodal and digital texts.										
Author's purpose and craft	ENG.III.8.A	Author's purpose and craft: listening, speaking, reading, writing, and thinking using multiple texts. The student uses critical inquiry to analyze the authors' choices and how they influence and communicate meaning within a variety of texts. The student analyzes and applies author's craft purposefully in order to develop his or her own products and performances. The student is expected to: (A) analyze the author's purpose, audience, and message within a text;					✓					
Author's purpose and craft	ENG.III.8.B	evaluate use of text structure to achieve the author's purpose;					✓					

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Author's purpose and craft	ENG.III.8.C	evaluate the author's use of print and graphic features to achieve specific purposes;										
Author's purpose and craft	ENG.III.8.D	evaluate how the author's use of language informs and shapes the perception of readers;					✓					
Author's purpose and craft	ENG.III.8.E	evaluate the use of literary devices such as paradox, satire, and allegory to achieve specific purposes;					✓					
Author's purpose and craft	ENG.III.8.F	evaluate how the author's diction and syntax contribute to the mood, voice, and tone of a text; and				✓			✓			
Author's purpose and craft	ENG.III.8.G	analyze the effects of rhetorical devices and logical fallacies on the way the text is read and understood.					✓					
Composition	ENG.III.9.A	Composition: listening, speaking, reading, writing, and thinking using multiple texts--writing process. The student uses the writing process recursively to compose multiple texts that are legible and use appropriate conventions. The student is expected to: (A) plan a piece of writing appropriate for various purposes and audiences by generating ideas through a range of strategies such as brainstorming, journaling, reading, or discussing;										
Composition	ENG.III.9.B.i	develop drafts into a focused, structured, and coherent piece of writing in timed and open-ended situations by: (i) using strategic organizational structures appropriate to purpose, audience, topic, and context; and								✓		
Composition	ENG.III.9.B.ii	developing an engaging idea reflecting depth of thought with effective use of rhetorical devices, details, examples, and commentary;										
Composition	ENG.III.9.C	revise drafts to improve clarity, development, organization, style, diction, and sentence fluency, both within and between sentences;							✓	✓		

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Composition	ENG.III.9.D	edit drafts to demonstrate a command of standard English conventions using a style guide as appropriate; and									✓	✓
Composition	ENG.III.9.E	publish written work for appropriate audiences.										
Composition	ENG.III.10.A	Composition: listening, speaking, reading, writing, and thinking using multiple texts--genres. The student uses genre characteristics and craft to compose multiple texts that are meaningful. The student is expected to: (A) compose literary texts such as fiction and poetry using genre characteristics and craft;										
Composition	ENG.III.10.B	compose informational texts such as explanatory essays, reports, resumes, and personal essays using genre characteristics and craft;							✓	✓		
Composition	ENG.III.10.C	compose argumentative texts using genre characteristics and craft;							✓	✓		
Composition	ENG.III.10.D	compose correspondence in a professional or friendly structure;										
Composition	ENG.III.10.E	compose literary analysis using genre characteristics and craft; and										
Composition	ENG.III.10.F	compose rhetorical analysis using genre characteristics and craft.										

Table 16: English IV TEKS Aligned to Digital SAT

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Developing and sustaining foundational language skills	ENG.IV.2.A	Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--vocabulary. The student uses newly acquired vocabulary expressively. The student is expected to: (A) use print or digital resources to clarify and validate understanding of multiple meanings of advanced vocabulary;										
Developing and sustaining foundational language skills	ENG.IV.2.B	analyze context to draw conclusions about nuanced meanings such as in imagery; and	✓	✓		✓						
Developing and sustaining foundational language skills	ENG.IV.2.C	determine the meaning of foreign words or phrases used frequently in English such as ad nauseum, in loco parentis, laissez-faire, and caveat emptor.										
Developing and sustaining foundational language skills	ENG.IV.3	Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--self-sustained reading. The student reads grade-appropriate texts independently. The student is expected to self-select text and read independently for a sustained period of time.										
Comprehension skills	ENG.IV.4.A	Comprehension skills: listening, speaking, reading, writing, and thinking using multiple texts. The student uses metacognitive skills to both develop and deepen comprehension of increasingly complex texts. The student is expected to: (A) establish purpose for reading assigned and self-selected texts;										
Comprehension skills	ENG.IV.4.B	generate questions about text before, during, and after reading to deepen understanding and gain information;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Comprehension skills	ENG.IV.4.C	make and correct or confirm predictions using text features, characteristics of genre, and structures;										
Comprehension skills	ENG.IV.4.D	create mental images to deepen understanding;										
Comprehension skills	ENG.IV.4.E	make connections to personal experiences, ideas in other texts, and society;										
Comprehension skills	ENG.IV.4.F	make inferences and use evidence to support understanding;		✓	✓							
Comprehension skills	ENG.IV.4.G	evaluate details read to analyze key ideas;	✓									
Comprehension skills	ENG.IV.4.H	synthesize information from a variety of text types to create new understanding; and						✓				
Comprehension skills	ENG.IV.4.I	monitor comprehension and make adjustments such as re-reading, using background knowledge, asking questions, annotating, and using outside sources when understanding breaks down.										
Response skills	ENG.IV.5.A	Response skills: listening, speaking, reading, writing, and thinking using multiple texts. The student responds to an increasingly challenging variety of sources that are read, heard, or viewed. The student is expected to: (A) describe personal connections to a variety of sources, including self-selected texts;										
Response skills	ENG.IV.5.B	write responses that demonstrate analysis of texts, including comparing texts within and across genres;										
Response skills	ENG.IV.5.C	use text evidence and original commentary to support an evaluative response;			✓							
Response skills	ENG.IV.5.D	paraphrase and summarize texts in ways that maintain meaning and logical order;	✓	✓	✓							
Response skills	ENG.IV.5.E	interact with sources in meaningful ways such as notetaking, annotating, freewriting, or illustrating;										
Response skills	ENG.IV.5.F	respond using acquired content and academic vocabulary as appropriate;	✓	✓	✓	✓			✓	✓		

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Response skills	ENG.IV.5.G	discuss and write about the explicit and implicit meanings of text;										
Response skills	ENG.IV.5.H	respond orally or in writing with appropriate register and purposeful vocabulary, tone, and voice;							✓	✓		
Response skills	ENG.IV.5.I	reflect on and adjust responses when valid evidence warrants; and			✓			✓				
Response skills	ENG.IV.5.J	defend or challenge the authors' claims using relevant text evidence.			✓							
Multiple genres	ENG.IV.6.A	Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts--literary elements. The student recognizes and analyzes literary elements within and across increasingly complex traditional, contemporary, classical, and diverse literary texts. The student is expected to: (A) analyze relationships among thematic development, characterization, point of view, significance of setting, and plot in a variety of literary texts;	✓				✓					
Multiple genres	ENG.IV.6.B	analyze how characters' behaviors and underlying motivations contribute to moral dilemmas that influence the plot and theme;										
Multiple genres	ENG.IV.6.C	critique and evaluate how complex plot structures such as subplots contribute to and advance the action; and										
Multiple genres	ENG.IV.6.D	evaluate how the historical, social, and economic context of setting(s) influences the plot, characterization, and theme.										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Multiple genres	ENG.IV.7.A	Multiple genres: listening, speaking, reading, writing, and thinking using multiple texts--genres. The student recognizes and analyzes genre-specific characteristics, structures, and purposes within and across increasingly complex traditional, contemporary, classical, and diverse texts. The student is expected to: (A) read and analyze British literature across literary periods;	✓		✓	✓	✓					
Multiple genres	ENG.IV.7.B	analyze the effects of sound, form, figurative language, graphics, and dramatic structure in poetry across literary time periods and cultures;					✓					
Multiple genres	ENG.IV.7.C	analyze and evaluate how the relationships among the dramatic elements advance the plot;										
Multiple genres	ENG.IV.7.D.i	critique and evaluate characteristics and structural elements of informational texts such as: (i) clear thesis, effective supporting evidence, pertinent examples, commentary, summary, and conclusion; and	✓		✓		✓					
Multiple genres	ENG.IV.7.D.ii	the relationship between organizational design and author's purpose;					✓					
Multiple genres	ENG.IV.7.E.i	critique and evaluate characteristics and structural elements of argumentative texts such as: (i) clear arguable thesis, appeals, structure of the argument, convincing conclusion, and call to action;	✓				✓					
Multiple genres	ENG.IV.7.E.ii	various types of evidence and treatment of counterarguments, including concessions and rebuttals; and			✓			✓				
Multiple genres	ENG.IV.7.E.iii	identifiable audience or reader; and					✓					
Multiple genres	ENG.IV.7.F	critique and evaluate the effectiveness of characteristics of multimodal and digital texts.										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Author's purpose and craft	ENG.IV.8.A	Author's purpose and craft: listening, speaking, reading, writing, and thinking using multiple texts. The student uses critical inquiry to analyze the authors' choices and how they influence and communicate meaning within a variety of texts. The student analyzes and applies author's craft purposefully in order to develop his or her own products and performances. The student is expected to: (A) evaluate the author's purpose, audience, and message within a text;					✓					
Author's purpose and craft	ENG.IV.8.B	evaluate use of text structure to achieve the author's purpose;					✓					
Author's purpose and craft	ENG.IV.8.C	evaluate the author's use of print and graphic features to achieve specific purposes;										
Author's purpose and craft	ENG.IV.8.D	critique and evaluate how the author's use of language informs and shapes the perception of readers;					✓					
Author's purpose and craft	ENG.IV.8.E	evaluate the use of literary devices such as paradox, satire, and allegory to achieve specific purposes;					✓					
Author's purpose and craft	ENG.IV.8.F	evaluate how the author's diction and syntax contribute to the effectiveness of a text; and				✓			✓			
Author's purpose and craft	ENG.IV.8.G	analyze the effects of rhetorical devices and logical fallacies on the way the text is read and understood.					✓					
Composition	ENG.IV.9.A	Composition: listening, speaking, reading, writing, and thinking using multiple texts--writing process. The student uses the writing process recursively to compose multiple texts that are legible and use appropriate conventions. The student is expected to: (A) plan a piece of writing appropriate for various purposes and audiences by generating ideas through a range of strategies such as brainstorming, journaling, reading, or discussing;										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Composition	ENG.IV.9.B.i	develop drafts into a focused, structured, and coherent piece of writing in timed and open-ended situations by: (i) using strategic organizational structures appropriate to purpose, audience, topic, and context; and								✓		
Composition	ENG.IV.9.B.ii	developing an engaging idea reflecting depth of thought with effective use of rhetorical devices, details, examples, and commentary;										
Composition	ENG.IV.9.C	revise drafts to improve clarity, development, organization, style, diction, and sentence fluency, both within and between sentences;							✓	✓		
Composition	ENG.IV.9.D	edit drafts to demonstrate a command of standard English conventions using a style guide as appropriate; and									✓	✓
Composition	ENG.IV.9.E	publish written work for appropriate audiences.										
Composition	ENG.IV.10.A	Composition: listening, speaking, reading, writing, and thinking using multiple texts--genres. The student uses genre characteristics and craft to compose multiple texts that are meaningful. The student is expected to: (A) compose literary texts such as fiction and poetry using genre characteristics and craft;										
Composition	ENG.IV.10.B	compose informational texts such as explanatory essays, reports, resumes, and personal essays using genre characteristics and craft;							✓	✓		
Composition	ENG.IV.10.C	compose argumentative texts using genre characteristics and craft;							✓	✓		
Composition	ENG.IV.10.D	compose correspondence in a professional or friendly structure;										
Composition	ENG.IV.10.E	compose literary analysis using genre characteristics and craft; and										
Composition	ENG.IV.10.F	compose rhetorical analysis using genre characteristics and craft.										

Table 17: ELA CCRS Aligned to Digital SAT Suite

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Writing	I.A.1	Compose a variety of texts that demonstrate clear focus, the logical development of ideas in well-organized paragraphs, and the use of appropriate language that advances the author's purpose. 1. Determine effective approaches, genres, rhetorical techniques, and media that demonstrate understanding of the writer's purpose and audience.							✓	✓		
Writing	I.A.2	Generate ideas, gather information, and manage evidence relevant to the topic and purpose.										
Writing	I.A.3	Evaluate relevance, quality, sufficiency, and depth of preliminary ideas and information; organize material generated; and formulate a thesis or purpose statement.							✓	✓		
Writing	I.A.4	Review feedback and revise each draft by organizing it more logically and fluidly, refining key ideas, and using language more precisely and effectively.							✓	✓		
Writing	I.A.5	Edit writing for audience, purpose, context, and style, assuring that it conforms to Standard American English, when appropriate.									✓	✓
Reading	II.A.1	Identify, analyze, and evaluate information within and across texts of varying lengths and genres. 1. Use effective reading strategies to determine a written work's purpose and intended audience.					✓					
Reading	II.A.2	Use text features to form an overview of content and to locate information.										
Reading	II.A.3	Identify explicit and implicit textual information including main ideas and author's purpose.	✓	✓			✓					
Reading	II.A.4	Make evidence-based inferences about a text's meaning, intent, and values.		✓	✓		✓					
Reading	II.A.5	Analyze and evaluate implicit and explicit arguments in a variety of texts for the quality and coherence of evidence and reasoning.	✓	✓	✓							

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Reading	II.A.6	Identify and analyze the author's use of rhetorical and literary devices to create meaning and affect the reader.					✓					
Reading	II.A.7	Compare and analyze how features of genre are used across texts.										
Reading	II.A.8	Identify, analyze, and evaluate similarities and differences in how multiple texts present information, argue a position, or relate a theme.						✓				
Reading	II.B.1	Apply a variety of strategies to determine the meanings of unfamiliar words and phrases. 1. Identify new words and concepts acquired through study of their relationships to other words and concepts.	✓	✓		✓						
Reading	II.B.2	Apply knowledge of roots and affixes to infer the meanings of new words.										
Reading	II.B.3	Use reference guides to confirm the meanings of new words or concepts.										
Reading	II.B.4	Make inferences about the denotative and connotative meanings of unfamiliar words using context clues.	✓	✓		✓						
Reading	II.C.1	Read and analyze literary and other texts from a variety of cultural and historical contexts. 1. Read widely, including complete texts from American, British, and world literatures.										
Reading	II.C.2	Analyze the relationships between works of literature and the historical periods and cultural contexts in which they were written.										
Reading	II.C.3	Examine the influence of myths, oral traditions, and Classical literature on subsequent works over time.										
Reading	II.D.1	Acquire insights about oneself, others, or the world from reading diverse texts. 1. Make text-to-self, text-to-text, and text-to-world connections										
Reading	II.D.2	Recognize the potential of diverse texts to cultivate empathy.										

TX Standards			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Reading	II.D.3	Appreciate the aesthetic qualities and values of diverse texts.										

Appendix C: Alignments of Mathematics Standards to Digital SAT Suite

The following tables detail the Texas CCRS and TEKS–digital SAT Suite alignments using the Texas standards as the organizing principle.

Table 18: Algebra I TEKS Aligned to Digital PSAT 8/9

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Linear functions, equations, and inequalities	1A.2(A)	Linear functions, equations, and inequalities. The student applies the mathematical process standards when using properties of linear functions to write and represent in multiple ways, with and without technology, linear equations, inequalities, and systems of equations. The student is expected to: (A) determine the domain and range of a linear function in mathematical problems; determine reasonable domain and range values for real-world situations, both continuous and discrete; and represent domain and range using inequalities;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Linear functions, equations, and inequalities	1A.2(B)	write linear equations in two variables in various forms, including $y = mx + b$, $Ax + By = C$, and y - y_1 = m(x- x_1), given one point and the slope and given two points;		✓	✓													
Linear functions, equations, and inequalities	1A.2(C)	write linear equations in two variables given a table of values, a graph, and a verbal description;		✓	✓													
Linear functions, equations, and inequalities	1A.2(D)	write and solve equations involving direct variation;		✓							✓							
Linear functions, equations, and inequalities	1A.2(E)	write the equation of a line that contains a given point and is parallel to a given line;			✓													
Linear functions, equations, and inequalities	1A.2(F)	write the equation of a line that contains a given point and is perpendicular to a given line;			✓													
Linear functions, equations, and inequalities	1A.2(G)	write an equation of a line that is parallel or perpendicular to the x- or y-axis and determine whether the slope of the line is zero or undefined;		✓	✓	✓												
Linear functions, equations, and inequalities	1A.2(H)	write linear inequalities in two variables given a table of values, a graph, and a verbal description; and																
Linear functions, equations, and inequalities	1A.2(I)	write systems of two linear equations given a table of values, a graph, and a verbal description.				✓												

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Linear functions, equations, and inequalities	1A.3.(A)	Linear functions, equations, and inequalities. The student applies the mathematical process standards when using graphs of linear functions, key features, and related transformations to represent in multiple ways and solve, with and without technology, equations, inequalities, and systems of equations. The student is expected to: (A) determine the slope of a line given a table of values, a graph, two points on the line, and an equation written in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$;		✓	✓													
Linear functions, equations, and inequalities	1A.3.(B)	calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems;		✓										✓				
Linear functions, equations, and inequalities	1A.3.(C)	graph linear functions on the coordinate plane and identify key features, including x-intercept, y-intercept, zeros, and slope, in mathematical and real-world problems;		✓														
Linear functions, equations, and inequalities	1A.3.(D)	graph the solution set of linear inequalities in two variables on the coordinate plane;					✓											
Linear functions, equations, and inequalities	1A.3.(E)	determine the effects on the graph of the parent function $f(x) = x$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of a, b, c, and d;		✓														

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Linear functions, equations, and inequalities	1A.3.(F)	graph systems of two linear equations in two variables on the coordinate plane and determine the solutions if they exist;				✓												
Linear functions, equations, and inequalities	1A.3.(G)	estimate graphically the solutions to systems of two linear equations with two variables in real-world problems;				✓												
Linear functions, equations, and inequalities	1A.3.(H)	graph the solution set of systems of two linear inequalities in two variables on the coordinate plane.					✓											
Linear functions, equations, and inequalities	1A.4.(A)	Linear functions, equations, and inequalities. The student applies the mathematical process standards to formulate statistical relationships and evaluate their reasonableness based on real-world data. The student is expected to: (A) calculate, using technology, the correlation coefficient between two quantitative variables and interpret this quantity as a measure of the strength of the linear association;																
Linear functions, equations, and inequalities	1A.4.(B)	compare and contrast association and causation in real-world problems;																
Linear functions, equations, and inequalities	1A.4.(C)	write, with and without technology, linear functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems.												✓				

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Linear functions, equations, and inequalities	1A.5.(A)	Linear functions, equations, and inequalities. The student applies the mathematical process standards to solve, with and without technology, linear equations and evaluate the reasonableness of their solutions. The student is expected to: (A) solve linear equations in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides;	✓															
Linear functions, equations, and inequalities	1A.5.(B)	solve linear inequalities in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides; and					✓											
Linear functions, equations, and inequalities	1A.5.(C)	solve systems of two linear equations with two variables for mathematical and real-world problems.				✓												

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Quadratic functions and equations	1A.6.(A)	Quadratic functions and equations. The student applies the mathematical process standards when using properties of quadratic functions to write and represent in multiple ways, with and without technology, quadratic equations. The student is expected to: (A) determine the domain and range of quadratic functions and represent the domain and range using inequalities;																
Quadratic functions and equations	1A.6.(B)	write equations of quadratic functions given the vertex and another point on the graph, write the equation in vertex form, $f(x) = a(x - h)^2 + k$, and rewrite the equation from vertex form to standard form, $f(x) = ax^2 + bx + c$; and								✓								
Quadratic functions and equations	1A.6.(C)	write quadratic functions when given real solutions and graphs of their related equations.								✓								

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Quadratic functions and equations	1A.7.(A)	Quadratic functions and equations. The student applies the mathematical process standards when using graphs of quadratic functions and their related transformations to represent in multiple ways and determine, with and without technology, the solutions to equations. The student is expected to: (A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including x-intercept, y-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry;								✓									
Quadratic functions and equations	1A.7.(B)	describe the relationship between the linear factors of quadratic expressions and the zeros of their associated quadratic functions; and																
Quadratic functions and equations	1A.7.(C)	determine the effects on the graph of the parent function $f(x) = x^2$ when f(x) is replaced by af(x), f(x) + d, f(x - c), or f(bx) for specific values of a, b, c, and d.																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Quadratic functions and equations	1A.8.(A)	Quadratic functions and equations. The student applies the mathematical process standards to solve, with and without technology, quadratic equations and evaluate the reasonableness of their solutions. The student formulates statistical relationships and evaluates their reasonableness based on real-world data. The student is expected to: (A) solve quadratic equations having real solutions by factoring, taking square roots, completing the square, and applying the quadratic formula; and							✓									
Quadratic functions and equations	1A.8.(B)	write, using technology, quadratic functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems.																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Exponential functions and equations	1A.9.(A)	Exponential functions and equations. The student applies the mathematical process standards when using properties of exponential functions and their related transformations to write, graph, and represent in multiple ways exponential equations and evaluate, with and without technology, the reasonableness of their solutions. The student formulates statistical relationships and evaluates their reasonableness based on real-world data. The student is expected to: (A) determine the domain and range of exponential functions of the form $f(x) = ab^x$ and represent the domain and range using inequalities;																
Exponential functions and equations	1A.9.(B)	interpret the meaning of the values of a and b in exponential functions of the form $f(x) = ab^x$ in real-world problems;																
Exponential functions and equations	1A.9.(C)	write exponential functions in the form $f(x) = ab^x$ (where b is a rational number) to describe problems arising from mathematical and real-world situations, including growth and decay;																
Exponential functions and equations	1A.9.(D)	graph exponential functions that model growth and decay and identify key features, including y-intercept and asymptote, in mathematical and real-world problems; and								✓								

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Exponential functions and equations	1A.9.(E)	write, using technology, exponential functions that provide a reasonable fit to data and make predictions for real-world problems.																
Number and algebraic methods	1A.10.(A)	Number and algebraic methods. The student applies the mathematical process standards and algebraic methods to rewrite in equivalent forms and perform operations on polynomial expressions. The student is expected to: (A) add and subtract polynomials of degree one and degree two;						✓										
Number and algebraic methods	1A.10.(B)	multiply polynomials of degree one and degree two;						✓										
Number and algebraic methods	1A.10.(C)	determine the quotient of a polynomial of degree one and polynomial of degree two when divided by a polynomial of degree one and polynomial of degree two when the degree of the divisor does not exceed the degree of the dividend;																
Number and algebraic methods	1A.10.(D)	rewrite polynomial expressions of degree one and degree two in equivalent forms using the distributive property;						✓										
Number and algebraic methods	1A.10.(E)	factor, if possible, trinomials with real factors in the form $ax^2 + bx + c$, including perfect square trinomials of degree two; and						✓										

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Number and algebraic methods	1A.10.(F)	decide if a binomial can be written as the difference of two squares and, if possible, use the structure of a difference of two squares to rewrite the binomial.						✓										
Number and algebraic methods	1A.11.(A)	Number and algebraic methods. The student applies the mathematical process standards and algebraic methods to rewrite algebraic expressions into equivalent forms. The student is expected to: (A) simplify numerical radical expressions involving square roots; and																
Number and algebraic methods	1A.11.(B)	simplify numeric and algebraic expressions using the laws of exponents, including integral and rational exponents.																
Number and algebraic methods	1A.12.(A)	Number and algebraic methods. The student applies the mathematical process standards and algebraic methods to write, solve, analyze, and evaluate equations, relations, and functions. The student is expected to: (A) decide whether relations represented verbally, tabularly, graphically, and symbolically define a function;																
Number and algebraic methods	1A.12.(B)	evaluate functions, expressed in function notation, given one or more elements in their domains;		✓						✓								

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Number and algebraic methods	1A.12.(C)	identify terms of arithmetic and geometric sequences when the sequences are given in function form using recursive processes;																
Number and algebraic methods	1A.12.(D)	write a formula for the nth term of arithmetic and geometric sequences, given the value of several of their terms; and																
Number and algebraic methods	1A.12.(E)	solve mathematic and scientific formulas, and other literal equations, for a specified variable.		✓	✓				✓	✓								

Table 19: Algebra II TEKS Aligned to Digital PSAT 8/9

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Attributes of functions and their inverses	2A.2(A)	Attributes of functions and their inverses. The student applies mathematical processes to understand that functions have distinct key attributes and understand the relationship between a function and its inverse. The student is expected to: (A) graph the functions $f(x) = \sqrt{x}$, $f(x) = 1/x$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = \lvert x \rvert$, and $f(x) = \log_b(x)$ where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;								✓									
Attributes of functions and their inverses	2A.2(B)	graph and write the inverse of a function using notation such as f - 1(x);																
Attributes of functions and their inverses	2A.2(C)	describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restriction(s) on domain, which will restrict its range;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Attributes of functions and their inverses	2A.2(D)	use the composition of two functions, including the necessary restrictions on the domain, to determine if the functions are inverses of each other;																
Systems of equations and inequalities	2A.3(A)	Systems of equations and inequalities. The student applies mathematical processes to formulate systems of equations and inequalities, use a variety of methods to solve, and analyze reasonableness of solutions. The student is expected to: (A) formulate systems of equations, including systems consisting of three linear equations in three variables and systems consisting of two equations, the first linear and the second quadratic;							✓									
Systems of equations and inequalities	2A.3(B)	solve systems of three linear equations in three variables by using Gaussian elimination, technology with matrices, and substitution;																
Systems of equations and inequalities	2A.3(C)	solve, algebraically, systems of two equations in two variables consisting of a linear equation and a quadratic equation;							✓									
Systems of equations and inequalities	2A.3(D)	determine the reasonableness of solutions to systems of a linear equation and a quadratic equation in two variables;							✓									

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Systems of equations and inequalities	2A.3(E)	formulate systems of at least two linear inequalities in two variables;																
Systems of equations and inequalities	2A.3(F)	solve systems of two or more linear inequalities in two variables;					✓											
Systems of equations and inequalities	2A.3(G)	determine possible solutions in the solution set of systems of two or more linear inequalities in two variables;					✓											
Quadratic and square root functions, equations, and inequalities.	2A.4(A)	Quadratic and square root functions, equations, and inequalities. The student applies mathematical processes to understand that quadratic and square root functions , equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to: (A) write the quadratic function given three specified points in the plane;								✓								
Quadratic and square root functions, equations, and inequalities.	2A.4(B)	write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening;								✓								
Quadratic and square root functions, equations, and inequalities.	2A.4(C)	determine the effect on the graph of $f(x) = \sqrt{x}$ when f(x) is replaced by af(x), f(x) + d, f(bx), and f(x - c) for specific positive and negative values of a, b, c, and d;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Quadratic and square root functions, equations, and inequalities.	2A.4(D)	transform a quadratic function $f(x) = ax^2 + bx + c$ to the form $f(x) = a(x - h)^2 + k$ to identify the different attributes of f(x);																
Quadratic and square root functions, equations, and inequalities.	2A.4(E)	formulate quadratic and square root equations using technology given a table of data;																
Quadratic and square root functions, equations, and inequalities.	2A.4(F)	solve quadratic and square root equations;							✓									
Quadratic and square root functions, equations, and inequalities.	2A.4(G)	identify extraneous solutions of square root equations;																
Quadratic and square root functions, equations, and inequalities.	2A.4(H)	solve quadratic inequalities.																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Exponential and logarithmic functions and equations	2A.5(A)	Exponential and logarithmic functions and equations. The student applies mathematical processes to understand that exponential and logarithmic functions can be used to model situations and solve problems. The student is expected to: (A) determine the effects on the key attributes on the graphs of f(x) = bx and f(x) = logb(x) where b is 2, 10, and e when f(x) is replaced by af(x), f(x) + d, and f(x - c) for specific positive and negative real values of a, c, and d;																
Exponential and logarithmic functions and equations	2A.5(B)	formulate exponential and logarithmic equations that model real-world situations , including exponential relationships written in recursive notation;																
Exponential and logarithmic functions and equations	2A.5(C)	rewrite exponential equations as their corresponding logarithmic equations and logarithmic equations as their corresponding exponential equations;																
Exponential and logarithmic functions and equations	2A.5(D)	solve exponential equations of the form $y = ab^x$ where a is a nonzero real number and b is greater than zero and not equal to one and single logarithmic equations having real solutions;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Exponential and logarithmic functions and equations	2A.5(E)	determine the reasonableness of a solution to a logarithmic equation.																
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(A)	Cubic, cube root, absolute value and rational functions, equations, and inequalities. The student applies mathematical processes to understand that cubic, cube root, absolute value and rational functions, equations, and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to: (A) analyze the effect on the graphs of $f(x) = x^3$ and $f(x) = \sqrt[3]{x}$ when f(x) is replaced by af(x), f(bx), f(x - c), and f(x) + d for specific positive and negative real values of a, b, c, and d;																
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(B)	solve cube root equations that have real roots;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(C)	analyze the effect on the graphs of $f(x) = \|x\|$ when f(x) is replaced by af(x), f(bx), f(x - c), and f(x) + d for specific positive and negative real values of a, b, c, and d;																
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(D)	formulate absolute value linear equations;																
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(E)	solve absolute value linear equations;																
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(F)	solve absolute value linear inequalities;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(G)	analyze the effect on the graphs of $f(x) = 1/x$ when f(x) is replaced by af(x), f(bx), f(x - c), and f(x) + d for specific positive and negative real values of a, b, c, and d;																
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(H)	formulate rational equations that model real-world situations;																
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(I)	solve rational equations that have real solutions;																
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(J)	determine the reasonableness of a solution to a rational equation;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(K)	determine the asymptotic restrictions on the domain of a rational function and represent domain and range using interval notation, inequalities, and set notation;																
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(L)	formulate and solve equations involving inverse variation;									✓							
Number and algebraic methods.	2A.7(A)	Number and algebraic methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to: (A) add, subtract, and multiply complex numbers;																
Number and algebraic methods.	2A.7(B)	add, subtract, and multiply polynomials;						✓										
Number and algebraic methods.	2A.7(C)	determine the quotient of a polynomial of degree three and of degree four when divided by a polynomial of degree one and of degree two;																
Number and algebraic methods.	2A.7(D)	determine the linear factors of a polynomial function of degree three and of degree four using algebraic methods;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Number and algebraic methods.	2A.7(E)	determine linear and quadratic factors of a polynomial expression of degree three and of degree four, including factoring the sum and difference of two cubes and factoring by grouping;						✓										
Number and algebraic methods.	2A.7(F)	determine the sum, difference, product, and quotient of rational expressions with integral exponents of degree one and of degree two;																
Number and algebraic methods.	2A.7(G)	rewrite radical expressions that contain variables to equivalent forms;																
Number and algebraic methods.	2A.7(H)	solve equations involving rational exponents																
Number and algebraic methods.	2A.7(I)	write the domain and range of a function in interval notation , inequalities, and set notation.																
Data	2A.8(A)	The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to: (A) analyze data to select the appropriate model from among linear, quadratic, and exponential models												✓				

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Data	2A.8(B)	use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data;																
Data	2A.8(C)	predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models.																

Table 20: Geometry TEKS Aligned to Digital PSAT 8/9

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Coordinate and transformational geometry	G.2.(A)	The student uses the process skills to understand the connections between algebra and geometry and uses the one- and two-dimensional coordinate systems to verify geometric conjectures. The student is expected to: (A) determine the coordinates of a point that is a given fractional distance less than one from one end of a line segment to the other in one- and two-dimensional coordinate systems, including finding the midpoint;														✓		
Coordinate and transformational geometry	G.2.(B)	derive and use the distance, slope, and midpoint formulas to verify geometric relationships, including congruence of segments and parallelism or perpendicularity of pairs of lines; and			✓													
Coordinate and transformational geometry	G.2.(C)	determine an equation of a line parallel or perpendicular to a given line that passes through a given point.			✓													

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Coordinate and transformational geometry	G.3.(A)	The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity). The student is expected to: (A) describe and perform transformations of figures in a plane using coordinate notation;																
Coordinate and transformational geometry	G.3.(B)	determine the image or pre-image of a given two-dimensional figure under a composition of rigid transformations, a composition of non-rigid transformations, and a composition of both, including dilations where the center can be any point in the plane;																
Coordinate and transformational geometry	G.3.(C)	identify the sequence of transformations that will carry a given pre-image onto an image on and off the coordinate plane; and																
Coordinate and transformational geometry	G.3.(D)	identify and distinguish between reflectional and rotational symmetry in a plane figure.																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Logical argument and constructions	G.4.(A)	The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to: distinguish between undefined terms, definitions, postulates, conjectures, and theorems;																
Logical argument and constructions	G.4.(B)	identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse;																
Logical argument and constructions	G.4.(C)	verify that a conjecture is false using a counterexample; and																
Logical argument and constructions	G.4.(D)	compare geometric relationships between Euclidean and spherical geometries, including parallel lines and the sum of the angles in a triangle.																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Logical argument and constructions	G.5.(A)	The student uses constructions to validate conjectures about geometric figures. The student is expected to: (A) investigate patterns to make conjectures about geometric relationships, including angles formed by parallel lines cut by a transversal, criteria required for triangle congruence, special segments of triangles, diagonals of quadrilaterals, interior and exterior angles of polygons, and special segments and angles of circles choosing from a variety of tools;															✓	
Logical argument and constructions	G.5.(B)	construct congruent segments, congruent angles, a segment bisector, an angle bisector, perpendicular lines, the perpendicular bisector of a line segment, and a line parallel to a given line through a point not on a line using a compass and a straightedge;																
Logical argument and constructions	G.5.(C)	use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships; and																
Logical argument and constructions	G.5.(D)	verify the Triangle Inequality theorem using constructions and apply the theorem to solve problems.																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Proof and congruence	G.6.(A)	The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to: (A) verify theorems about angles formed by the intersection of lines and line segments, including vertical angles, and angles formed by parallel lines cut by a transversal and prove equidistance between the endpoints of a segment and points on its perpendicular bisector and apply these relationships to solve problems;																
Proof and congruence	G.6.(B)	prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Side-Side-Side, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions;																
Proof and congruence	G.6.(C)	apply the definition of congruence, in terms of rigid transformations, to identify congruent figures and their corresponding sides and angles;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Proof and congruence	G.6.(D)	verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, the sum of interior angles, base angles of isosceles triangles, midsegments, and medians, and apply these relationships to solve problems; and															✓	
Proof and congruence	G.6.(E)	prove a quadrilateral is a parallelogram, rectangle, square, or rhombus using opposite sides, opposite angles, or diagonals and apply these relationships to solve problems.																
Similarity, proof, and trigonometry	G.7.(A)	Similarity, proof, and trigonometry. The student uses the process skills in applying similarity to solve problems. The student is expected to: (A) apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles; and																
Similarity, proof, and trigonometry	G.7.(B)	apply the Angle-Angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems.																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Similarity, proof, and trigonometry	G.8.(A)	The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to: (A) prove theorems about similar triangles, including the Triangle Proportionality theorem, and apply these theorems to solve problems; and																
Similarity, proof, and trigonometry	G.8.(B)	identify and apply the relationships that exist when an altitude is drawn to the hypotenuse of a right triangle, including the geometric mean, to solve problems.																
Similarity, proof, and trigonometry	G.9.(A)	The student uses the process skills to understand and apply relationships in right triangles. The student is expected to: (A) determine the lengths of sides and measures of angles in a right triangle by applying the trigonometric ratios sine, cosine, and tangent to solve problems; and																
Similarity, proof, and trigonometry	G.9.(B)	apply the relationships in special right triangles 30°-60°-90° and 45°-45°-90° and the Pythagorean theorem, including Pythagorean triples, to solve problems.																✓

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Similarity, proof, and trigonometry	G.10.(A)	The student uses the process skills to recognize characteristics and dimensional changes of two- and three-dimensional figures. The student is expected to: (A) identify the shapes of two-dimensional cross-sections of prisms, pyramids, cylinders, cones, and spheres and identify three-dimensional objects generated by rotations of two-dimensional shapes; and														✓		
Similarity, proof, and trigonometry	G.10.(B)	determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional and non-proportional dimensional change.																
Two-dimensional and three-dimensional figures	G.11.(A)	The student uses the process skills in the application of formulas to determine measures of two- and three-dimensional figures. The student is expected to: (A) apply the formula for the area of regular polygons to solve problems using appropriate units of measure;														✓		
Two-dimensional and three-dimensional figures	G.11.(B)	determine the area of composite two-dimensional figures comprised of a combination of triangles, parallelograms, trapezoids, kites, regular polygons, or sectors of circles to solve problems using appropriate units of measure;														✓		

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Two-dimensional and three-dimensional figures	G.11.(C)	apply the formulas for the total and lateral surface area of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure; and														✓		
Two-dimensional and three-dimensional figures	G.11.(D)	apply the formulas for the volume of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure.														✓		
Circles	G.12.(A)	The student uses the process skills to understand geometric relationships and apply theorems and equations about circles. The student is expected to: apply theorems about circles, including relationships among angles, radii, chords, tangents, and secants, to solve non-contextual problems;																
Circles	G.12.(B)	apply the proportional relationship between the measure of an arc length of a circle and the circumference of the circle to solve problems;																
Circles	G.12.(C)	apply the proportional relationship between the measure of the area of a sector of a circle and the area of the circle to solve problems;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Circles	G.12.(D)	describe radian measure of an angle as the ratio of the length of an arc intercepted by a central angle and the radius of the circle; and																
Circles	G.12.(E)	show that the equation of a circle with center at the origin and radius r is $x^2 + y^2 = r^2$ and determine the equation for the graph of a circle with radius r and center (h, k), $(x - h)^2 + (y - k)^2 = r^2$.																
Probability	G.13.(A)	The student uses the process skills to understand probability in real-world situations and how to apply independence and dependence of events. The student is expected to: (A) develop strategies to use permutations and combinations to solve contextual problems;													✓			
Probability	G.13.(B)	determine probabilities based on area to solve contextual problems;													✓			
Probability	G.13.(C)	identify whether two events are independent and compute the probability of the two events occurring together with or without replacement;													✓			
Probability	G.13.(D)	apply conditional probability in contextual problems; and													✓			
Probability	G.13.(E)	apply independence in contextual problems.													✓			

Table 21: Grade 8 TEKS Aligned to Digital PSAT 8/9

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Number and operations	8.2.(A)	The student applies mathematical process standards to represent and use real numbers in a variety of forms. The student is expected to: (A) extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of real numbers;																
Number and operations	8.2.(B)	approximate the value of an irrational number, including pi and square roots of numbers less than 225, and locate that rational number approximation on a number line;																
Number and operations	8.2.(C)	convert between standard decimal notation and scientific notation;																
Number and operations	8.2.(D)	order a set of real numbers arising from mathematical and real-world contexts.																
Proportionality	8.3.(A)	The student applies mathematical process standards to use proportional relationships to describe dilations. The student is expected to: (A) generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape and its dilation;									✓							

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Proportionality	8.3.(B)	compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane;																
Proportionality	8.3.(C)	use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation;																
Proportionality	8.4.(A)	The student applies mathematical process standards to explain proportional and non-proportional relationships involving slope. The student is expected to: (A) use similar right triangles to develop an understanding that slope, m, given as the rate comparing the change in y-values to the change in x-values, $(y_2 - y_1) / (x_2 - x_1)$, is the same for any two points (x_1, y_1) and (x_2, y_2) on the same line;		✓	✓													
Proportionality	8.4.(B)	graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship;												✓				
Proportionality	8.4.(C)	use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems.		✓	✓									✓				

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Proportionality	8.5.(A)	The student applies mathematical process standards to use proportional and nonproportional relationships to develop foundational concepts of functions. The student is expected to: (A) represent linear proportional situations with tables, graphs, and equations in the form of y= kx;		✓	✓						✓							
Proportionality	8.5.(B)	represent linear non-proportional situations with tables, graphs, and equations in the form of y = mx + b, where b ≠ 0;		✓	✓													
Proportionality	8.5.(C)	contrast bivariate sets of data that suggest a linear relationship with bivariate sets of data that do not suggest a linear relationship from a graphical representation;																
Proportionality	8.5.(D)	use a trend line that approximates the linear relationship between bivariate sets of data to make predictions;		✓										✓				
Proportionality	8.5.(E)	solve problems involving direct variation;		✓							✓							
Proportionality	8.5.(F)	distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form y = kx or y = mx + b, where b ≠ 0;																
Proportionality	8.5.(G)	identify functions using sets of ordered pairs, tables, mappings, and graphs;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Proportionality	8.5.(H)	identify examples of proportional and non-proportional functions that arise from mathematical and real-world problems;		✓														
Proportionality	8.5.(I)	write an equation in the form y = mx + b to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations.		✓										✓				
Expressions, equations, and relationships	8.6.(A)	The student applies mathematical process standards to develop mathematical relationships and make connections to geometric formulas. The student is expected to: (A) describe the volume formula V = Bh of a cylinder in terms of its base area and its height;																
Expressions, equations, and relationships	8.6.(B)	model the relationship between the volume of a cylinder and a cone having both congruent bases and heights and connect that relationship to the formulas;														✓		
Expressions, equations, and relationships	8.6.(C)	use models and diagrams to explain the Pythagorean theorem.																✓
Expressions, equations, and relationships	8.7.(A)	The student applies mathematical process standards to use geometry to solve problems. The student is expected to: (A) solve problems involving the volume of cylinders, cones, and spheres;														✓		

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Expressions, equations, and relationships	8.7.(B)	use previous knowledge of surface area to make connections to the formulas for lateral and total surface area and determine solutions for problems involving rectangular prisms, triangular prisms, and cylinders;														✓		
Expressions, equations, and relationships	8.7.(C)	use the Pythagorean Theorem and its converse to solve problems;																✓
Expressions, equations, and relationships	8.7.(D)	determine the distance between two points on a coordinate plane using the Pythagorean Theorem.																
Expressions, equations, and relationships	8.8.(A)	The student applies mathematical process standards to (A)use one-variable equations or inequalities in problem situations. The student is expected to: write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants;	✓				✓											
Expressions, equations, and relationships	8.8.(B)	write a corresponding real-world problem when given a one-variable equation or inequality with variables on both sides of the equal sign using rational number coefficients and constants;	✓	✓														

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Expressions, equations, and relationships	8.8.(C)	model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants;	✓															
Expressions, equations, and relationships	8.8.(D)	use informal arguments to establish facts about the angle sum and exterior angle of triangles, the angles created when parallel lines are cut by a transversal, and the angle criterion for similarity of triangles.															✓	
Expressions, equations, and relationships	8.9.(A)	The student applies mathematical process standards to use multiple representations to develop foundational concepts of simultaneous linear equations. The student is expected to (A) identify and verify the values of x and y that simultaneously satisfy two linear equations in the form y = mx + b from the intersections of the graphed equations.				✓												
Two-dimensional shapes	8.10.(A)	The student applies mathematical process standards to develop transformational geometry concepts. The student is expected to: (A) generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of two-dimensional shapes on a coordinate plane;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Two-dimensional shapes	8.10.(B)	differentiate between transformations that preserve congruence and those that do not;																
Two-dimensional shapes	8.10.(C)	explain the effect of translations, reflections over the x- or y-axis, and rotations limited to 90°, 180°, 270°, and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation;																
Two-dimensional shapes	8.10.(D)	model the effect on linear and area measurements of dilated two-dimensional shapes.																
Measurement and data	8.11.(A)	The student applies mathematical process standards to use statistical procedures to describe data. The student is expected to: (A) construct a scatterplot and describe the observed data to address questions of association such as linear, nonlinear, and no association between bivariate data;												✓				
Measurement and data	8.11.(B)	determine the mean absolute deviation and use this quantity as a measure of the average distance data are from the mean using a data set of no more than 10 data points;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Measurement and data	8.11.(C)	simulate generating random samples of the same size from a population with known characteristics to develop the notion of a random sample being representative of the population from which it was selected;																
Personal financial literacy	8.12.(A)	The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to: (A) solve real-world problems comparing how interest rate and loan length affect the cost of credit;								✓								
Personal financial literacy	8.12.(B)	calculate the total cost of repaying a loan, including credit cards and easy access loans, under various rates of interest and over different periods using an online calculator;																
Personal financial literacy	8.12.(C)	explain how small amounts of money invested regularly , including money saved for college and retirement, grow over time;																
Personal financial literacy	8.12.(D)	calculate and compare simple interest and compound interest earnings;								✓		✓						
Personal financial literacy	8.12.(E)	identify and explain the advantages and disadvantages of different payment methods;																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis					Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Area and volume	Lines, angles, and triangles	Right triangles
Personal financial literacy	8.12.(F)	analyze situations to determine if they represent financially responsible decisions and identify the benefits of financial responsibility and the costs of financial irresponsibility;																
Personal financial literacy	8.12.(G)	estimate the cost of a two-year and four-year college education, including family contribution, and devise a periodic savings plan for accumulating the money needed to contribute to the total cost of attendance for at least the first year of college.																

Table 22: Algebra I TEKS Aligned to Digital PSAT/NMSQT and PSAT 10

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Linear functions, equations, and inequalities	1A.2(A)	The student applies the mathematical process standards when using properties of linear functions to write and represent in multiple ways, with and without technology, linear equations, inequalities, and systems of equations. The student is expected to: (A) determine the domain and range of a linear function in mathematical problems; determine reasonable domain and range values for real-world situations, both continuous and discrete; and represent domain and range using inequalities;																	
Linear functions, equations, and inequalities	1A.2(B)	write linear equations in two variables in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$, given one point and the slope and given two points;		✓	✓														
Linear functions, equations, and inequalities	1A.2(C)	write linear equations in two variables given a table of values, a graph, and a verbal description;		✓	✓														
Linear functions, equations, and inequalities	1A.2(D)	write and solve equations involving direct variation;		✓							✓								

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Linear functions, equations, and inequalities	1A.2(E)	write the equation of a line that contains a given point and is parallel to a given line;			✓														
Linear functions, equations, and inequalities	1A.2(F)	write the equation of a line that contains a given point and is perpendicular to a given line;			✓														
Linear functions, equations, and inequalities	1A.2(G)	write an equation of a line that is parallel or perpendicular to the x- or y-axis and determine whether the slope of the line is zero or undefined;		✓	✓	✓													
Linear functions, equations, and inequalities	1A.2(H)	write linear inequalities in two variables given a table of values, a graph, and a verbal description; and					✓												
Linear functions, equations, and inequalities	1A.2(I)	write systems of two linear equations given a table of values, a graph, and a verbal description.				✓													

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Linear functions, equations, and inequalities	1A.3.(A)	The student applies the mathematical process standards when using graphs of linear functions, key features, and related transformations to represent in multiple ways and solve, with and without technology, equations, inequalities, and systems of equations. The student is expected to: (A) determine the slope of a line given a table of values, a graph, two points on the line, and an equation written in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$;		✓	✓														
Linear functions, equations, and inequalities	1A.3.(B)	calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems;		✓										✓					
Linear functions, equations, and inequalities	1A.3.(C)	graph linear functions on the coordinate plane and identify key features, including x-intercept, y-intercept, zeros, and slope, in mathematical and real-world problems;		✓															
Linear functions, equations, and inequalities	1A.3.(D)	graph the solution set of linear inequalities in two variables on the coordinate plane;					✓												

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Linear functions, equations, and inequalities	1A.3.(E)	determine the effects on the graph of the parent function f(x) = x when f(x) is replaced by a·f(x), f(x) + d, f(x - c), f(bx) for specific values of a, b, c, and d;		✓															
Linear functions, equations, and inequalities	1A.3.(F)	graph systems of two linear equations in two variables on the coordinate plane and determine the solutions if they exist;				✓													
Linear functions, equations, and inequalities	1A.3.(G)	estimate graphically the solutions to systems of two linear equations with two variables in real-world problems;				✓													
Linear functions, equations, and inequalities	1A.3.(H)	graph the solution set of systems of two linear inequalities in two variables on the coordinate plane.					✓												
Linear functions, equations, and inequalities	1A.4.(A)	The student applies the mathematical process standards to formulate statistical relationships and evaluate their reasonableness based on real-world data. The student is expected to: (A) calculate, using technology, the correlation coefficient between two quantitative variables and interpret this quantity as a measure of the strength of the linear association;																	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Linear functions, equations, and inequalities	1A.4.(B)	compare and contrast association and causation in real-world problems;																	
Linear functions, equations, and inequalities	1A.4.(C)	write, with and without technology, linear functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems.												✓					
Linear functions, equations, and inequalities	1A.5.(A)	The student applies the mathematical process standards to solve, with and without technology, linear equations and evaluate the reasonableness of their solutions. The student is expected to: (A) solve linear equations in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides;	✓																
Linear functions, equations, and inequalities	1A.5.(B)	solve linear inequalities in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides; and					✓												
Linear functions, equations, and inequalities	1A.5.(C)	solve systems of two linear equations with two variables for mathematical and real-world problems.				✓													

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Quadratic functions and equations	1A.6.(A)	The student applies the mathematical process standards when using properties of quadratic functions to write and represent in multiple ways, with and without technology, quadratic equations. The student is expected to: (A) determine the domain and range of quadratic functions and represent the domain and range using inequalities;																	
Quadratic functions and equations	1A.6.(B)	write equations of quadratic functions given the vertex and another point on the graph, write the equation in vertex form, $f(x) = a(x – h)^2 + k$, and rewrite the equation from vertex form to standard form, $f(x) = ax^2 + bx + c$; and								✓									
Quadratic functions and equations	1A.6.(C)	write quadratic functions when given real solutions and graphs of their related equations.								✓									

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Quadratic functions and equations	1A.7.(A)	The student applies the mathematical process standards when using graphs of quadratic functions and their related transformations to represent in multiple ways and determine, with and without technology, the solutions to equations. The student is expected to: (A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including x-intercept, y-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry;								✓									
Quadratic functions and equations	1A.7.(B)	describe the relationship between the linear factors of quadratic expressions and the zeros of their associated quadratic functions; and																	
Quadratic functions and equations	1A.7.(C)	determine the effects on the graph of the parent function $f(x) = x^2$ when f(x) is replaced by $a \cdot f(x)$, f(x) + d, f(x-c), or f(bx) for specific values of a, b, c, and d.								✓									

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Quadratic functions and equations	1A.8.(A)	The student applies the mathematical process standards to solve, with and without technology, quadratic equations and evaluate the reasonableness of their solutions. The student formulates statistical relationships and evaluates their reasonableness based on real-world data. The student is expected to: (A) solve quadratic equations having real solutions by factoring, taking square roots, completing the square, and applying the quadratic formula; and							✓	✓									
Quadratic functions and equations	1A.8.(B)	write, using technology, quadratic functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems.												✓					

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Exponential functions and equations	1A.9.(A)	The student applies the mathematical process standards when using properties of exponential functions and their related transformations to write, graph, and represent in multiple ways exponential equations and evaluate, with and without technology, the reasonableness of their solutions. The student formulates statistical relationships and evaluates their reasonableness based on real-world data. The student is expected to: (A) determine the domain and range of exponential functions of the form $f(x) = ab^x$ and represent the domain and range using inequalities;																	
Exponential functions and equations	1A.9.(B)	interpret the meaning of the values of a and b in exponential functions of the form $f(x) = ab^x$ in real-world problems;								✓									
Exponential functions and equations	1A.9.(C)	write exponential functions in the form $f(x) = ab^x$ (where b is a rational number) to describe problems arising from mathematical and real-world situations, including growth and decay;								✓									
Exponential functions and equations	1A.9.(D)	graph exponential functions that model growth and decay and identify key features, including y-intercept and asymptote, in mathematical and real-world problems; and								✓									

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Exponential functions and equations	1A.9.(E)	write, using technology, exponential functions that provide a reasonable fit to data and make predictions for real-world problems.												✓					
Number and algebraic methods	1A.10.(A)	The student applies the mathematical process standards and algebraic methods to rewrite in equivalent forms and perform operations on polynomial expressions. The student is expected to: (A) add and subtract polynomials of degree one and degree two;						✓											
Number and algebraic methods	1A.10.(B)	multiply polynomials of degree one and degree two;						✓											
Number and algebraic methods	1A.10.(C)	determine the quotient of a polynomial of degree one and polynomial of degree two when divided by a polynomial of degree one and polynomial of degree two when the degree of the divisor does not exceed the degree of the dividend;																	
Number and algebraic methods	1A.10.(D)	rewrite polynomial expressions of degree one and degree two in equivalent forms using the distributive property;						✓											
Number and algebraic methods	1A.10.(E)	factor, if possible, trinomials with real factors in the form $ax^2 + bx + c$, including perfect square trinomials of degree two; and						✓											

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Number and algebraic methods	1A.10.(F)	decide if a binomial can be written as the difference of two squares and, if possible, use the structure of a difference of two squares to rewrite the binomial.						✓											
Number and algebraic methods	1A.11.(A)	The student applies the mathematical process standards and algebraic methods to rewrite algebraic expressions into equivalent forms. The student is expected to: (A) simplify numerical radical expressions involving square roots; and																	
Number and algebraic methods	1A.11.(B)	simplify numeric and algebraic expressions using the laws of exponents, including integral and rational exponents.																	
Number and algebraic methods	1A.12.(A)	The student applies the mathematical process standards and algebraic methods to write, solve, analyze, and evaluate equations, relations, and functions. The student is expected to: (A) decide whether relations represented verbally, tabularly, graphically, and symbolically define a function;																	
Number and algebraic methods	1A.12.(B)	evaluate functions, expressed in function notation, given one or more elements in their domains;		✓						✓									

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Number and algebraic methods	1A.12.(C)	identify terms of arithmetic and geometric sequences when the sequences are given in function form using recursive processes;																	
Number and algebraic methods	1A.12.(D)	write a formula for the nth term of arithmetic and geometric sequences, given the value of several of their terms; and																	
Number and algebraic methods	1A.12.(E)	solve mathematic and scientific formulas, and other literal equations, for a specified variable.		✓	✓				✓	✓									

Table 23: Algebra II TEKS Aligned to Digital PSAT/NMSQT and PSAT 10

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Attributes of functions and their inverses	2A.2(A)	The student applies mathematical processes to understand that functions have distinct key attributes and understand the relationship between a function and its inverse. The student is expected to: (A) graph the functions $f(x) = \sqrt{x}$, $f(x) = 1/x$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = \lvert x \rvert$, and $f(x) = \log_b(x)$ where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;								✓									
Attributes of functions and their inverses	2A.2(B)	graph and write the inverse of a function using notation such as f - 1(x);																	
Attributes of functions and their inverses	2A.2(C)	describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restriction(s) on domain, which will restrict its range;																	
Attributes of functions and their inverses	2A.2(D)	use the composition of two functions, including the necessary restrictions on the domain, to determine if the functions are inverses of each other;																	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Systems of equations and inequalities	2A.3(A)	The student applies mathematical processes to formulate systems of equations and inequalities, use a variety of methods to solve, and analyze reasonableness of solutions. The student is expected to: (A) formulate systems of equations, including systems consisting of three linear equations in three variables and systems consisting of two equations, the first linear and the second quadratic;							✓										
Systems of equations and inequalities	2A.3(B)	solve systems of three linear equations in three variables by using Gaussian elimination, technology with matrices, and substitution;																	
Systems of equations and inequalities	2A.3(C)	solve, algebraically, systems of two equations in two variables consisting of a linear equation and a quadratic equation;							✓										
Systems of equations and inequalities	2A.3(D)	determine the reasonableness of solutions to systems of a linear equation and a quadratic equation in two variables;							✓										
Systems of equations and inequalities	2A.3(E)	formulate systems of at least two linear inequalities in two variables;					✓												

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Systems of equations and inequalities	2A.3(F)	solve systems of two or more linear inequalities in two variables;					✓												
Systems of equations and inequalities	2A.3(G)	determine possible solutions in the solution set of systems of two or more linear inequalities in two variables;					✓												
Quadratic and square root functions, equations, and inequalities.	2A.4(A)	The student applies mathematical processes to understand that quadratic and square root functions , equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to: (A) write the quadratic function given three specified points in the plane;								✓									
Quadratic and square root functions, equations, and inequalities.	2A.4(B)	write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening;								✓									
Quadratic and square root functions, equations, and inequalities.	2A.4(C)	determine the effect on the graph of $f(x) = \sqrt{x}$ when f(x) is replaced by af(x), f(x) + d, f(bx), and f(x - c) for specific positive and negative values of a, b, c, and d;																	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Quadratic and square root functions, equations, and inequalities.	2A.4(D)	transform a quadratic function $f(x) = ax^2 + bx + c$ to the form $f(x) = a(x - h)^2 + k$ to identify the different attributes of f(x);								✓									
Quadratic and square root functions, equations, and inequalities.	2A.4(E)	formulate quadratic and square root equations using technology given a table of data;																	
Quadratic and square root functions, equations, and inequalities.	2A.4(F)	solve quadratic and square root equations;							✓	✓									
Quadratic and square root functions, equations, and inequalities.	2A.4(G)	identify extraneous solutions of square root equations;							✓										
Quadratic and square root functions, equations, and inequalities.	2A.4(H)	solve quadratic inequalities.																	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Exponential and logarithmic functions and equations	2A.5(A)	The student applies mathematical processes to understand that exponential and logarithmic functions can be used to model situations and solve problems. The student is expected to: (A) determine the effects on the key attributes on the graphs of $f(x) = b^x$ and $f(x) = \log_b(x)$ where b is 2, 10, and e when f(x) is replaced by af(x), f(x) + d, and f(x - c) for specific positive and negative real values of a, c, and d;																	
Exponential and logarithmic functions and equations	2A.5(B)	formulate exponential and logarithmic equations that model real-world situations , including exponential relationships written in recursive notation;								✓									
Exponential and logarithmic functions and equations	2A.5(C)	rewrite exponential equations as their corresponding logarithmic equations and logarithmic equations as their corresponding exponential equations;																	
Exponential and logarithmic functions and equations	2A.5(D)	solve exponential equations of the form $y = ab^x$ where a is a nonzero real number and b is greater than zero and not equal to one and single logarithmic equations having real solutions;								✓									

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Exponential and logarithmic functions and equations	2A.5(E)	determine the reasonableness of a solution to a logarithmic equation.																	
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(A)	The student applies mathematical processes to understand that cubic, cube root, absolute value and rational functions, equations, and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to: (A) analyze the effect on the graphs of $f(x) = x^3$ and f(x) = $\sqrt[3]{x}$ when f(x) is replaced by af(x), f(bx), f(x - c), and f(x) + d for specific positive and negative real values of a, b, c, and d;																	
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(B)	solve cube root equations that have real roots;							✓										

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(C)	analyze the effect on the graphs of $f(x) = \|x\|$ when f(x) is replaced by af(x), f(bx), f(x - c), and f(x) + d for specific positive and negative real values of a, b, c, and d;																	
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(D)	formulate absolute value linear equations;																	
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(E)	solve absolute value linear equations;							✓	✓									
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(F)	solve absolute value linear inequalities;							✓										

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(G)	analyze the effect on the graphs of $f(x) = 1x$ when f(x) is replaced by af(x), f(bx), f(x - c), and f(x) + d for specific positive and negative real values of a, b, c, and d;								✓									
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(H)	formulate rational equations that model real-world situations;																	
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(I)	solve rational equations that have real solutions;							✓	✓									
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(J)	determine the reasonableness of a solution to a rational equation;							✓										

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(K)	determine the asymptotic restrictions on the domain of a rational function and represent domain and range using interval notation, inequalities, and set notation;																	
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(L)	formulate and solve equations involving inverse variation;									✓								
Number and algebraic methods.	2A.7(A)	The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to: (A) add, subtract, and multiply complex numbers;																	
Number and algebraic methods.	2A.7(B)	add, subtract, and multiply polynomials;						✓											
Number and algebraic methods.	2A.7(C)	determine the quotient of a polynomial of degree three and of degree four when divided by a polynomial of degree one and of degree two;																	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Number and algebraic methods.	2A.7(D)	determine the linear factors of a polynomial function of degree three and of degree four using algebraic methods;																	
Number and algebraic methods.	2A.7(E)	determine linear and quadratic factors of a polynomial expression of degree three and of degree four, including factoring the sum and difference of two cubes and factoring by grouping;						✓											
Number and algebraic methods.	2A.7(F)	determine the sum, difference, product, and quotient of rational expressions with integral exponents of degree one and of degree two;																	
Number and algebraic methods.	2A.7(G)	rewrite radical expressions that contain variables to equivalent forms;																	
Number and algebraic methods.	2A.7(H)	solve equations involving rational exponents																	
Number and algebraic methods.	2A.7(I)	write the domain and range of a function in interval notation, inequalities, and set notation.																	
Data	2A.8(A)	The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to: (A) analyze data to select the appropriate model from among linear, quadratic, and exponential models												✓					

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Data	2A.8(B)	use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data;																	
Data	2A.8(C)	predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models.												✓					

Table 24: Geometry TEKS Aligned to Digital PSAT/NMSQT and PSAT 10

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Coordinate and transformational geometry	G.2.(A)	The student uses the process skills to understand the connections between algebra and geometry and uses the one- and two-dimensional coordinate systems to verify geometric conjectures. The student is expected to: (A) determine the coordinates of a point that is a given fractional distance less than one from one end of a line segment to the other in one- and two-dimensional coordinate systems, including finding the midpoint;															✓		
Coordinate and transformational geometry	G.2.(B)	derive and use the distance, slope, and midpoint formulas to verify geometric relationships, including congruence of segments and parallelism or perpendicularity of pairs of lines; and			✓														
Coordinate and transformational geometry	G.2.(C)	determine an equation of a line parallel or perpendicular to a given line that passes through a given point.			✓														

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Coordinate and transformational geometry	G.3.(A)	The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity). The student is expected to: (A) describe and perform transformations of figures in a plane using coordinate notation;																	
Coordinate and transformational geometry	G.3.(B)	determine the image or pre-image of a given two-dimensional figure under a composition of rigid transformations, a composition of non-rigid transformations, and a composition of both, including dilations where the center can be any point in the plane;																	
Coordinate and transformational geometry	G.3.(C)	identify the sequence of transformations that will carry a given pre-image onto an image on and off the coordinate plane; and																	
Coordinate and transformational geometry	G.3.(D)	identify and distinguish between reflectional and rotational symmetry in a plane figure.																	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Logical argument and constructions	G.4.(A)	The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to: distinguish between undefined terms, definitions, postulates, conjectures, and theorems;																	
Logical argument and constructions	G.4.(B)	identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse;																	
Logical argument and constructions	G.4.(C)	verify that a conjecture is false using a counterexample; and																	
Logical argument and constructions	G.4.(D)	compare geometric relationships between Euclidean and spherical geometries, including parallel lines and the sum of the angles in a triangle.																	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Logical argument and constructions	G.5.(A)	The student uses constructions to validate conjectures about geometric figures. The student is expected to: (A) investigate patterns to make conjectures about geometric relationships, including angles formed by parallel lines cut by a transversal, criteria required for triangle congruence, special segments of triangles, diagonals of quadrilaterals, interior and exterior angles of polygons, and special segments and angles of circles choosing from a variety of tools;																✓	
Logical argument and constructions	G.5.(B)	construct congruent segments, congruent angles, a segment bisector, an angle bisector, perpendicular lines, the perpendicular bisector of a line segment, and a line parallel to a given line through a point not on a line using a compass and a straightedge;																	
Logical argument and constructions	G.5.(C)	use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships; and																	
Logical argument and constructions	G.5.(D)	verify the Triangle Inequality theorem using constructions and apply the theorem to solve problems.																✓	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Proof and congruence	G.6.(A)	The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to: (A) verify theorems about angles formed by the intersection of lines and line segments, including vertical angles, and angles formed by parallel lines cut by a transversal and prove equidistance between the endpoints of a segment and points on its perpendicular bisector and apply these relationships to solve problems;																✓	
Proof and congruence	G.6.(B)	prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Side-Side-Side, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions;																✓	
Proof and congruence	G.6.(C)	apply the definition of congruence, in terms of rigid transformations, to identify congruent figures and their corresponding sides and angles;																	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Proof and congruence	G.6.(D)	verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, the sum of interior angles, base angles of isosceles triangles, midsegments, and medians, and apply these relationships to solve problems; and																✓	
Proof and congruence	G.6.(E)	prove a quadrilateral is a parallelogram, rectangle, square, or rhombus using opposite sides, opposite angles, or diagonals and apply these relationships to solve problems.																	
Similarity, proof, and trigonometry	G.7.(A)	The student uses the process skills in applying similarity to solve problems. The student is expected to: (A) apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles; and																✓	
Similarity, proof, and trigonometry	G.7.(B)	apply the Angle-Angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems.																✓	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Similarity, proof, and trigonometry	G.8.(A)	The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to: (A) prove theorems about similar triangles, including the Triangle Proportionality theorem, and apply these theorems to solve problems; and																✓	
Similarity, proof, and trigonometry	G.8.(B)	identify and apply the relationships that exist when an altitude is drawn to the hypotenuse of a right triangle, including the geometric mean, to solve problems.																✓	
Similarity, proof, and trigonometry	G.9.(A)	The student uses the process skills to understand and apply relationships in right triangles. The student is expected to: (A) determine the lengths of sides and measures of angles in a right triangle by applying the trigonometric ratios sine, cosine, and tangent to solve problems; and																	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Similarity, proof, and trigonometry	G.9.(B)	apply the relationships in special right triangles 30°-60°-90° and 45°-45°-90° and the Pythagorean theorem, including Pythagorean triples, to solve problems.																	✓
Similarity, proof, and trigonometry	G.10.(A)	The student uses the process skills to recognize characteristics and dimensional changes of two- and three-dimensional figures. The student is expected to: (A) identify the shapes of two-dimensional cross-sections of prisms, pyramids, cylinders, cones, and spheres and identify three-dimensional objects generated by rotations of two-dimensional shapes; and															✓		
Similarity, proof, and trigonometry	G.10.(B)	determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional and non-proportional dimensional change.																✓	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Two-dimensional and three-dimensional figures	G.11.(A)	The student uses the process skills in the application of formulas to determine measures of two- and three-dimensional figures. The student is expected to: (A) apply the formula for the area of regular polygons to solve problems using appropriate units of measure;															✓		
Two-dimensional and three-dimensional figures	G.11.(B)	determine the area of composite two-dimensional figures comprised of a combination of triangles, parallelograms, trapezoids, kites, regular polygons, or sectors of circles to solve problems using appropriate units of measure;															✓		
Two-dimensional and three-dimensional figures	G.11.(C)	apply the formulas for the total and lateral surface area of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure; and															✓		
Two-dimensional and three-dimensional figures	G.11.(D)	apply the formulas for the volume of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure.															✓		

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Circles	G.12.(A)	The student uses the process skills to understand geometric relationships and apply theorems and equations about circles. The student is expected to: apply theorems about circles, including relationships among angles, radii, chords, tangents, and secants, to solve non-contextual problems;																	
Circles	G.12.(B)	apply the proportional relationship between the measure of an arc length of a circle and the circumference of the circle to solve problems;																	
Circles	G.12.(C)	apply the proportional relationship between the measure of the area of a sector of a circle and the area of the circle to solve problems;																	
Circles	G.12.(D)	describe radian measure of an angle as the ratio of the length of an arc intercepted by a central angle and the radius of the circle; and																	
Circles	G.12.(E)	show that the equation of a circle with center at the origin and radius r is $x^2 + y^2 = r^2$ and determine the equation for the graph of a circle with radius r and center (h, k), $(x - h)^2 + (y - k)^2 = r^2$.																	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis						Geometry and Trigonometry		
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable / Systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data: Distributions and measures of center and spread	Two-variable data: Models and scatterplots	Probability and conditional probability	Inference from sample statistics	Area and volume	Lines, angles, and triangles	Right triangles
Probability	G.13.(A)	The student uses the process skills to understand probability in real-world situations and how to apply independence and dependence of events. The student is expected to: (A) develop strategies to use permutations and combinations to solve contextual problems;													✓				
Probability	G.13.(B)	determine probabilities based on area to solve contextual problems;													✓				
Probability	G.13.(C)	identify whether two events are independent and compute the probability of the two events occurring together with or without replacement;													✓				
Probability	G.13.(D)	apply conditional probability in contextual problems; and													✓				
Probability	G.13.(E)	apply independence in contextual problems.													✓				

Table 25: Algebra I TEKS Aligned to Digital SAT

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Linear functions, equations, and inequalities	1A.2(A)	The student applies the mathematical process standards when using properties of linear functions to write and represent in multiple ways, with and without technology, linear equations, inequalities, and systems of equations. The student is expected to: (A) determine the domain and range of a linear function in mathematical problems; determine reasonable domain and range values for real-world situations, both continuous and discrete; and represent domain and range using inequalities;																			
Linear functions, equations, and inequalities	1A.2(B)	write linear equations in two variables in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$, given one point and the slope and given two points;		✓	✓																
Linear functions, equations, and inequalities	1A.2(C)	write linear equations in two variables given a table of values, a graph, and a verbal description;		✓	✓																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Linear functions, equations, and inequalities	1A.2(D)	write and solve equations involving direct variation;		✓							✓										
Linear functions, equations, and inequalities	1A.2(E)	write the equation of a line that contains a given point and is parallel to a given line;			✓																
Linear functions, equations, and inequalities	1A.2(F)	write the equation of a line that contains a given point and is perpendicular to a given line;			✓																
Linear functions, equations, and inequalities	1A.2(G)	write an equation of a line that is parallel or perpendicular to the x- or y-axis and determine whether the slope of the line is zero or undefined;		✓	✓	✓															
Linear functions, equations, and inequalities	1A.2(H)	write linear inequalities in two variables given a table of values, a graph, and a verbal description; and					✓														
Linear functions, equations, and inequalities	1A.2(I)	write systems of two linear equations given a table of values, a graph, and a verbal description.				✓															

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Linear functions, equations, and inequalities	1A.3.(A)	Linear functions, equations, and inequalities. The student applies the mathematical process standards when using graphs of linear functions, key features, and related transformations to represent in multiple ways and solve, with and without technology, equations, inequalities, and systems of equations. The student is expected to: (A) determine the slope of a line given a table of values, a graph, two points on the line, and an equation written in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$;		✓	✓																
Linear functions, equations, and inequalities	1A.3.(B)	calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems;		✓										✓							
Linear functions, equations, and inequalities	1A.3.(C)	graph linear functions on the coordinate plane and identify key features, including x-intercept, y-intercept, zeros, and slope, in mathematical and real-world problems;		✓																	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Linear functions, equations, and inequalities	1A.3.(D)	graph the solution set of linear inequalities in two variables on the coordinate plane;					✓														
Linear functions, equations, and inequalities	1A.3.(E)	determine the effects on the graph of the parent function f(x) = x when f(x) is replaced by a·f(x), f(x) + d, f(x - c), f(bx) for specific values of a, b, c, and d;		✓																	
Linear functions, equations, and inequalities	1A.3.(F)	graph systems of two linear equations in two variables on the coordinate plane and determine the solutions if they exist;				✓															
Linear functions, equations, and inequalities	1A.3.(G)	estimate graphically the solutions to systems of two linear equations with two variables in real-world problems;				✓															
Linear functions, equations, and inequalities	1A.3.(H)	graph the solution set of systems of two linear inequalities in two variables on the coordinate plane.					✓														

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Linear functions, equations, and inequalities	1A.4.(A)	The student applies the mathematical process standards to formulate statistical relationships and evaluate their reasonableness based on real-world data. The student is expected to: (A) calculate, using technology, the correlation coefficient between two quantitative variables and interpret this quantity as a measure of the strength of the linear association;																			
Linear functions, equations, and inequalities	1A.4.(B)	compare and contrast association and causation in real-world problems;															✓				
Linear functions, equations, and inequalities	1A.4.(C)	write, with and without technology, linear functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems.												✓							

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Linear functions, equations, and inequalities	1A.5.(A)	The student applies the mathematical process standards to solve, with and without technology, linear equations and evaluate the reasonableness of their solutions. The student is expected to: (A) solve linear equations in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides;	✓																		
Linear functions, equations, and inequalities	1A.5.(B)	solve linear inequalities in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides; and					✓														
Linear functions, equations, and inequalities	1A.5.(C)	solve systems of two linear equations with two variables for mathematical and real-world problems.				✓															

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Quadratic functions and equations	1A.6.(A)	The student applies the mathematical process standards when using properties of quadratic functions to write and represent in multiple ways, with and without technology, quadratic equations. The student is expected to: (A) determine the domain and range of quadratic functions and represent the domain and range using inequalities;																			
Quadratic functions and equations	1A.6.(B)	write equations of quadratic functions given the vertex and another point on the graph, write the equation in vertex form, $f(x) = a(x - h)^2 + k$, and rewrite the equation from vertex form to standard form, $f(x) = ax^2 + bx + c$; and								✓											
Quadratic functions and equations	1A.6.(C)	write quadratic functions when given real solutions and graphs of their related equations.								✓											

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Quadratic functions and equations	1A.7.(A)	The student applies the mathematical process standards when using graphs of quadratic functions and their related transformations to represent in multiple ways and determine, with and without technology, the solutions to equations. The student is expected to: (A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including x-intercept, y-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry;								✓											
Quadratic functions and equations	1A.7.(B)	describe the relationship between the linear factors of quadratic expressions and the zeros of their associated quadratic functions; and								✓											
Quadratic functions and equations	1A.7.(C)	determine the effects on the graph of the parent function $f(x) = x^2$ when f(x) is replaced by af(x), f(x) + d, f(x - c), or f(bx) for specific values of a, b, c, and d.								✓											

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Quadratic functions and equations	1A.8.(A)	The student applies the mathematical process standards to solve, with and without technology, quadratic equations and evaluate the reasonableness of their solutions. The student formulates statistical relationships and evaluates their reasonableness based on real-world data. The student is expected to: (A) solve quadratic equations having real solutions by factoring, taking square roots, completing the square, and applying the quadratic formula; and							✓	✓											
Quadratic functions and equations	1A.8.(B)	write, using technology, quadratic functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems.												✓							

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Exponential functions and equations	1A.9.(A)	The student applies the mathematical process standards when using properties of exponential functions and their related transformations to write, graph, and represent in multiple ways exponential equations and evaluate, with and without technology, the reasonableness of their solutions. The student formulates statistical relationships and evaluates their reasonableness based on real-world data. The student is expected to: (A) determine the domain and range of exponential functions of the form $f(x) = ab^x$ and represent the domain and range using inequalities;																			
Exponential functions and equations	1A.9.(B)	interpret the meaning of the values of a and b in exponential functions of the form $f(x) = ab^x$ in real-world problems;								✓											
Exponential functions and equations	1A.9.(C)	write exponential functions in the form $f(x) = ab^x$ (where b is a rational number) to describe problems arising from mathematical and real-world situations, including growth and decay;								✓											

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Exponential functions and equations	1A.9.(D)	graph exponential functions that model growth and decay and identify key features, including y-intercept and asymptote, in mathematical and real-world problems; and								✓											
Exponential functions and equations	1A.9.(E)	write, using technology, exponential functions that provide a reasonable fit to data and make predictions for real-world problems.												✓							
Number and algebraic methods	1A.10.(A)	The student applies the mathematical process standards and algebraic methods to rewrite in equivalent forms and perform operations on polynomial expressions. The student is expected to: (A) add and subtract polynomials of degree one and degree two;						✓													
Number and algebraic methods	1A.10.(B)	multiply polynomials of degree one and degree two;						✓													
Number and algebraic methods	1A.10.(C)	determine the quotient of a polynomial of degree one and polynomial of degree two when divided by a polynomial of degree one and polynomial of degree two when the degree of the divisor does not exceed the degree of the dividend;						✓													

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Number and algebraic methods	1A.10.(D)	rewrite polynomial expressions of degree one and degree two in equivalent forms using the distributive property;						✓													
Number and algebraic methods	1A.10.(E)	factor, if possible, trinomials with real factors in the form $ax^2 + bx + c$, including perfect square trinomials of degree two; and						✓													
Number and algebraic methods	1A.10.(F)	decide if a binomial can be written as the difference of two squares and, if possible, use the structure of a difference of two squares to rewrite the binomial.						✓													
Number and algebraic methods	1A.11.(A)	The student applies the mathematical process standards and algebraic methods to rewrite algebraic expressions into equivalent forms. The student is expected to: (A) simplify numerical radical expressions involving square roots; and						✓													
Number and algebraic methods	1A.11.(B)	simplify numeric and algebraic expressions using the laws of exponents, including integral and rational exponents.						✓													

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Number and algebraic methods	1A.12.(A)	The student applies the mathematical process standards and algebraic methods to write, solve, analyze, and evaluate equations, relations, and functions. The student is expected to: (A) decide whether relations represented verbally, tabularly, graphically, and symbolically define a function;																			
Number and algebraic methods	1A.12.(B)	evaluate functions, expressed in function notation, given one or more elements in their domains;		✓						✓											
Number and algebraic methods	1A.12.(C)	identify terms of arithmetic and geometric sequences when the sequences are given in function form using recursive processes;																			
Number and algebraic methods	1A.12.(D)	write a formula for the nth term of arithmetic and geometric sequences, given the value of several of their terms; and																			
Number and algebraic methods	1A.12.(E)	solve mathematic and scientific formulas, and other literal equations, for a specified variable.		✓	✓				✓	✓											

Table 26: Algebra II TEKS Aligned to Digital SAT

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Attributes of functions and their inverses	2A.2(A)	The student applies mathematical processes to understand that functions have distinct key attributes and understand the relationship between a function and its inverse. The student is expected to: (A) graph the functions $f(x) = \sqrt{x}$, $f(x) = 1/x$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = \lvert x \rvert$, and $f(x) = \log_b(x)$ where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;								✓											
Attributes of functions and their inverses	2A.2(B)	graph and write the inverse of a function using notation such as $f^{-1}(x)$;																			
Attributes of functions and their inverses	2A.2(C)	describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restriction(s) on domain, which will restrict its range;																			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Attributes of functions and their inverses	2A.2(D)	use the composition of two functions, including the necessary restrictions on the domain, to determine if the functions are inverses of each other;																			
Systems of equations and inequalities	2A.3(A)	The student applies mathematical processes to formulate systems of equations and inequalities, use a variety of methods to solve, and analyze reasonableness of solutions. The student is expected to: (A) formulate systems of equations, including systems consisting of three linear equations in three variables and systems consisting of two equations, the first linear and the second quadratic;							✓												
Systems of equations and inequalities	2A.3(B)	solve systems of three linear equations in three variables by using Gaussian elimination, technology with matrices, and substitution;																			
Systems of equations and inequalities	2A.3(C)	solve, algebraically, systems of two equations in two variables consisting of a linear equation and a quadratic equation;							✓												

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Systems of equations and inequalities	2A.3(D)	determine the reasonableness of solutions to systems of a linear equation and a quadratic equation in two variables;							✓												
Systems of equations and inequalities	2A.3(E)	formulate systems of at least two linear inequalities in two variables;					✓														
Systems of equations and inequalities	2A.3(F)	solve systems of two or more linear inequalities in two variables;					✓														
Systems of equations and inequalities	2A.3(G)	determine possible solutions in the solution set of systems of two or more linear inequalities in two variables;					✓														
Quadratic and square root functions, equations, and inequalities.	2A.4(A)	The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions. The student is expected to: (A) write the quadratic function given three specified points in the plane;								✓											
Quadratic and square root functions, equations, and inequalities.	2A.4(B)	write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening;								✓											

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Quadratic and square root functions, equations, and inequalities.	2A.4(C)	determine the effect on the graph of $f(x) = \sqrt{x}$ when f(x) is replaced by af(x), f(x) + d, f(bx), and f(x - c) for specific positive and negative values of a, b, c, and d;																			
Quadratic and square root functions, equations, and inequalities.	2A.4(D)	transform a quadratic function $f(x) = ax^2 + bx + c$ to the form $f(x) = a(x - h)^2 + k$ to identify the different attributes of f(x);								✓											
Quadratic and square root functions, equations, and inequalities.	2A.4(E)	formulate quadratic and square root equations using technology given a table of data;																			
Quadratic and square root functions, equations, and inequalities.	2A.4(F)	solve quadratic and square root equations;							✓	✓											
Quadratic and square root functions, equations, and inequalities.	2A.4(G)	identify extraneous solutions of square root equations;							✓												

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Quadratic and square root functions, equations, and inequalities.	2A.4(H)	solve quadratic inequalities.																			
Exponential and logarithmic functions and equations	2A.5(A)	The student applies mathematical processes to understand that exponential and logarithmic functions can be used to model situations and solve problems. The student is expected to: (A) determine the effects on the key attributes on the graphs of $f(x) = bx$ and $f(x) = \log_b(x)$ where b is 2, 10, and e when f(x) is replaced by af(x), f(x) + d, and f(x - c) for specific positive and negative real values of a, c, and d;																			
Exponential and logarithmic functions and equations	2A.5(B)	formulate exponential and logarithmic equations that model real-world situations , including exponential relationships written in recursive notation;								✓											
Exponential and logarithmic functions and equations	2A.5(C)	rewrite exponential equations as their corresponding logarithmic equations and logarithmic equations as their corresponding exponential equations;																			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Exponential and logarithmic functions and equations	2A.5(D)	solve exponential equations of the form $y = ab^x$ where a is a nonzero real number and b is greater than zero and not equal to one and single logarithmic equations having real solutions;								✓											
Exponential and logarithmic functions and equations	2A.5(E)	determine the reasonableness of a solution to a logarithmic equation.																			
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(A)	The student applies mathematical processes to understand that cubic, cube root, absolute value and rational functions, equations, and inequalities can be used to model situations, solve problems, and make predictions. The student is expected to: (A) analyze the effect on the graphs of $f(x) = x^3$ and $f(x) = \sqrt[3]{x}$ when f(x) is replaced by af(x), f(bx), f(x - c), and f(x) + d for specific positive and negative real values of a, b, c, and d;																			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(B)	solve cube root equations that have real roots;							✓												
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(C)	analyze the effect on the graphs of $f(x) = \|x\|$ when f(x) is replaced by af(x), f(bx), f(x - c), and f(x) + d for specific positive and negative real values of a, b, c, and d;																			
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(D)	formulate absolute value linear equations;																			
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(E)	solve absolute value linear equations;							✓	✓											

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(F)	solve absolute value linear inequalities;							✓												
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(G)	analyze the effect on the graphs of $f(x) = 1x$ when f(x) is replaced by af(x), f(bx), f(x - c), and f(x) + d for specific positive and negative real values of a, b, c, and d;								✓											
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(H)	formulate rational equations that model real-world situations;																			
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(I)	solve rational equations that have real solutions;							✓	✓											

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(J)	determine the reasonableness of a solution to a rational equation;							✓												
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(K)	determine the asymptotic restrictions on the domain of a rational function and represent domain and range using interval notation, inequalities, and set notation;																			
Cubic, cube root, absolute value and rational functions, equations, and inequalities.	2A.6(L)	formulate and solve equations involving inverse variation;									✓										
Number and algebraic methods.	2A.7(A)	The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to: (A) add, subtract, and multiply complex numbers;																			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Number and algebraic methods.	2A.7(B)	add, subtract, and multiply polynomials;						✓													
Number and algebraic methods.	2A.7(C)	determine the quotient of a polynomial of degree three and of degree four when divided by a polynomial of degree one and of degree two;						✓													
Number and algebraic methods.	2A.7(D)	determine the linear factors of a polynomial function of degree three and of degree four using algebraic methods;						✓		✓											
Number and algebraic methods.	2A.7(E)	determine linear and quadratic factors of a polynomial expression of degree three and of degree four, including factoring the sum and difference of two cubes and factoring by grouping;						✓													
Number and algebraic methods.	2A.7(F)	determine the sum, difference, product, and quotient of rational expressions with integral exponents of degree one and of degree two;						✓													
Number and algebraic methods.	2A.7(G)	rewrite radical expressions that contain variables to equivalent forms;						✓													
Number and algebraic methods.	2A.7(H)	solve equations involving rational exponents																			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Number and algebraic methods.	2A.7(I)	write the domain and range of a function in interval notation , inequalities, and set notation.																			
Data	2A.8(A)	The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to: (A) analyze data to select the appropriate model from among linear, quadratic, and exponential models												✓							
Data	2A.8(B)	use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data;																			
Data	2A.8(C)	predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models.												✓							

Table 27: Geometry TEKS Aligned to Digital SAT

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Coordinate and transformational geometry	G.2.(A)	The student uses the process skills to understand the connections between algebra and geometry and uses the one- and two-dimensional coordinate systems to verify geometric conjectures. The student is expected to: (A) determine the coordinates of a point that is a given fractional distance less than one from one end of a line segment to the other in one- and two-dimensional coordinate systems, including finding the midpoint;																✓			✓
Coordinate and transformational geometry	G.2.(B)	derive and use the distance, slope, and midpoint formulas to verify geometric relationships, including congruence of segments and parallelism or perpendicularity of pairs of lines; and			✓																
Coordinate and transformational geometry	G.2.(C)	determine an equation of a line parallel or perpendicular to a given line that passes through a given point.			✓																

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Coordinate and transformational geometry	G.3.(A)	The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity). The student is expected to: (A) describe and perform transformations of figures in a plane using coordinate notation;																			
Coordinate and transformational geometry	G.3.(B)	determine the image or pre-image of a given two-dimensional figure under a composition of rigid transformations, a composition of non-rigid transformations, and a composition of both, including dilations where the center can be any point in the plane;																			
Coordinate and transformational geometry	G.3.(C)	identify the sequence of transformations that will carry a given pre-image onto an image on and off the coordinate plane; and																			
Coordinate and transformational geometry	G.3.(D)	identify and distinguish between reflectional and rotational symmetry in a plane figure.																			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Logical argument and constructions	G.4.(A)	The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to: distinguish between undefined terms, definitions, postulates, conjectures, and theorems;																			
Logical argument and constructions	G.4.(B)	identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse;																			
Logical argument and constructions	G.4.(C)	verify that a conjecture is false using a counterexample; and																			
Logical argument and constructions	G.4.(D)	compare geometric relationships between Euclidean and spherical geometries, including parallel lines and the sum of the angles in a triangle.																			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Logical argument and constructions	G.5.(A)	The student uses constructions to validate conjectures about geometric figures. The student is expected to: (A) investigate patterns to make conjectures about geometric relationships, including angles formed by parallel lines cut by a transversal, criteria required for triangle congruence, special segments of triangles, diagonals of quadrilaterals, interior and exterior angles of polygons, and special segments and angles of circles choosing from a variety of tools;																	✓		
Logical argument and constructions	G.5.(B)	construct congruent segments, congruent angles, a segment bisector, an angle bisector, perpendicular lines, the perpendicular bisector of a line segment, and a line parallel to a given line through a point not on a line using a compass and a straightedge;																			
Logical argument and constructions	G.5.(C)	use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships; and																			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Logical argument and constructions	G.5.(D)	verify the Triangle Inequality theorem using constructions and apply the theorem to solve problems.																	✓		
Proof and congruence	G.6.(A)	The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to: (A) verify theorems about angles formed by the intersection of lines and line segments, including vertical angles, and angles formed by parallel lines cut by a transversal and prove equidistance between the endpoints of a segment and points on its perpendicular bisector and apply these relationships to solve problems;																	✓		
Proof and congruence	G.6.(B)	prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Side-Side-Side, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions;																	✓		

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Proof and congruence	G.6.(C)	apply the definition of congruence, in terms of rigid transformations, to identify congruent figures and their corresponding sides and angles;																			
Proof and congruence	G.6.(D)	verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, the sum of interior angles, base angles of isosceles triangles, midsegments, and medians, and apply these relationships to solve problems; and																	✓		
Proof and congruence	G.6.(E)	prove a quadrilateral is a parallelogram, rectangle, square, or rhombus using opposite sides, opposite angles, or diagonals and apply these relationships to solve problems.																			
Similarity, proof, and trigonometry	G.7.(A)	The student uses the process skills in applying similarity to solve problems. The student is expected to: (A) apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles; and																	✓		

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis								Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Similarity, proof, and trigonometry	G.7.(B)	apply the Angle-Angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems.																	✓		
Similarity, proof, and trigonometry	G.8.(A)	The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to: (A) prove theorems about similar triangles, including the Triangle Proportionality theorem, and apply these theorems to solve problems; and																	✓		
Similarity, proof, and trigonometry	G.8.(B)	identify and apply the relationships that exist when an altitude is drawn to the hypotenuse of a right triangle, including the geometric mean, to solve problems.																	✓		

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Similarity, proof, and trigonometry	G.9.(A)	The student uses the process skills to understand and apply relationships in right triangles. The student is expected to: (A) determine the lengths of sides and measures of angles in a right triangle by applying the trigonometric ratios sine, cosine, and tangent to solve problems; and																	✓		
Similarity, proof, and trigonometry	G.9.(B)	apply the relationships in special right triangles 30°-60°-90° and 45°-45°-90° and the Pythagorean theorem, including Pythagorean triples, to solve problems.																		✓	
Similarity, proof, and trigonometry	G.10.(A)	The student uses the process skills to recognize characteristics and dimensional changes of two- and three-dimensional figures. The student is expected to: (A) identify the shapes of two-dimensional cross-sections of prisms, pyramids, cylinders, cones, and spheres and identify three-dimensional objects generated by rotations of two-dimensional shapes; and																✓			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Similarity, proof, and trigonometry	G.10.(B)	determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional and non-proportional dimensional change.																	✓		
Two-dimensional and three-dimensional figures	G.11.(A)	The student uses the process skills in the application of formulas to determine measures of two- and three-dimensional figures. The student is expected to: (A) apply the formula for the area of regular polygons to solve problems using appropriate units of measure;																✓			
Two-dimensional and three-dimensional figures	G.11.(B)	determine the area of composite two-dimensional figures comprised of a combination of triangles, parallelograms, trapezoids, kites, regular polygons, or sectors of circles to solve problems using appropriate units of measure;																✓			✓
Two-dimensional and three-dimensional figures	G.11.(C)	apply the formulas for the total and lateral surface area of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure; and																✓			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Two-dimensional and three-dimensional figures	G.11.(D)	apply the formulas for the volume of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure.																✓			
Circles	G.12.(A)	The student uses the process skills to understand geometric relationships and apply theorems and equations about circles. The student is expected to: apply theorems about circles, including relationships among angles, radii, chords, tangents, and secants, to solve non-contextual problems;																			✓
Circles	G.12.(B)	apply the proportional relationship between the measure of an arc length of a circle and the circumference of the circle to solve problems;																			✓
Circles	G.12.(C)	apply the proportional relationship between the measure of the area of a sector of a circle and the area of the circle to solve problems;																			✓
Circles	G.12.(D)	describe radian measure of an angle as the ratio of the length of an arc intercepted by a central angle and the radius of the circle; and																			✓

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Circles	G.12.(E)	show that the equation of a circle with center at the origin and radius r is $x^2 + y^2 = r^2$ and determine the equation for the graph of a circle with radius r and center (h, k), $(x - h)^2 + (y - k)^2 = r^2$.																			✓
Probability	G.13.(A)	The student uses the process skills to understand probability in real-world situations and how to apply independence and dependence of events. The student is expected to: (A) develop strategies to use permutations and combinations to solve contextual problems;													✓						
Probability	G.13.(B)	determine probabilities based on area to solve contextual problems;													✓						
Probability	G.13.(C)	identify whether two events are independent and compute the probability of the two events occurring together with or without replacement;													✓						
Probability	G.13.(D)	apply conditional probability in contextual problems; and													✓						
Probability	G.13.(E)	apply independence in contextual problems.													✓						

Table 28: Math CCRS Aligned to Digital SAT Suite

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Numeric Reasoning	I.A.1	Number representations and operations 1. Compare relative magnitudes of rational and irrational numbers, and understand that numbers can be represented in different ways.																			
Numeric Reasoning	I.A.2	Perform computations with rational and irrational numbers.																			
Numeric Reasoning	I.B.1	Number sense and number concepts 1. Use estimation to check for errors and reasonableness of solutions.																			
Numeric Reasoning	I.B.2	Interpret the relationships between the different representations of numbers.																			
Numeric Reasoning	I.C.1	Systems of measurement 1. Select or use the appropriate type of method, unit, and tool for the attribute being measured.									✓							✓			✓
Numeric Reasoning	I.C.2	Convert units within and between systems of measurement.									✓							✓			✓
Algebraic Reasoning	II.A.1	Identifying expressions and equations 1. Explain the difference between expressions and equations.																			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Algebraic Reasoning	II.B.1	Manipulating expressions 1. Recognize and use algebraic properties, concepts, and algorithms to combine, transform, and evaluate expressions (e.g., polynomials, radicals, rational expressions).						✓													
Algebraic Reasoning	II.C.1	Solving equations, inequalities, and systems of equations and inequalities 1. Describe and interpret solution sets of equalities and inequalities.	✓	✓	✓	✓	✓		✓	✓											
Algebraic Reasoning	II.C.2	Explain the difference between the solution set of an equation and the solution set of an inequality.	✓	✓	✓	✓	✓		✓	✓											
Algebraic Reasoning	II.C.3	Recognize and use algebraic properties, concepts, and algorithms to solve equations, inequalities, and systems of linear equations and inequalities.	✓	✓	✓	✓	✓		✓	✓											
Algebraic Reasoning	II.D.1	Representing relationships 1. Interpret multiple representations of equations, inequalities, and relationships.		✓	✓	✓	✓		✓	✓											
Algebraic Reasoning	II.D.2	Convert among multiple representations of equations, inequalities, and relationships.		✓	✓	✓	✓		✓	✓											

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Geometric and Spatial Reasoning	III.A.1	Figures and their properties 1. Recognize characteristics and dimensional changes of two- and three-dimensional figures.																✓	✓	✓	✓
Geometric and Spatial Reasoning	III.A.2	Form and validate conjectures about one-, two-, and three-dimensional figures and their properties.																✓	✓	✓	✓
Geometric and Spatial Reasoning	III.A.3	Recognize and apply right triangle relationships including basic trigonometry.																✓	✓	✓	✓
Geometric and Spatial Reasoning	III.B.1	Transformations and symmetry 1. Identify transformations and symmetries of figures.																✓			
Geometric and Spatial Reasoning	III.B.2	Use transformations to investigate congruence, similarity, and symmetries of figures																✓			
Geometric and Spatial Reasoning	III.C.1	Connections between geometry and other mathematical content strands 1. Make connections between geometry and algebraic equations.		✓	✓		✓			✓					✓						
Geometric and Spatial Reasoning	III.C.2	Make connections between geometry, statistics, and probability.													✓						
Geometric and Spatial Reasoning	III.D.1	Measurements involving geometry and algebra 1. Find the perimeter and area of two-dimensional figures.																✓	✓	✓	

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Geometric and Spatial Reasoning	III.D.2	Determine the surface area and volume of three-dimensional figures.																✓		✓	
Geometric and Spatial Reasoning	III.D.3	Determine indirect measurements of geometric figures using a variety of methods.																✓	✓	✓	
Probabilistic Reasoning	IV.A.1	Counting principles 1. Determine the nature and the number of elements in a finite sample space.																			
Probabilistic Reasoning	IV.B.1	Computation and interpretation of probabilities 1. Compute and interpret the probability of an event and its complement.													✓						
Probabilistic Reasoning	IV.B.2	Compute and interpret the probability of compound events.													✓						
Probabilistic Reasoning	IV.C.1	Measurement involving probability 1. Use probability to make informed decisions.																			
Statistical Reasoning	V.A.1	Design a study 1. Formulate a statistical question, plan an investigation, and collect data.															✓				
Statistical Reasoning	V.B.1	Describe data 1. Classify types of data.											✓	✓		✓					
Statistical Reasoning	V.B.2	Construct appropriate visual representations of data.												✓	✓	✓					

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Statistical Reasoning	V.B.3	Compute and describe the study data with measures of center and basic notions of spread.																			
Statistical Reasoning	V.B.4	Describe patterns and departure from patterns in the study data.																			
Statistical Reasoning	V.C.1	Analyze, interpret, and draw conclusions from data 1. Analyze data sets using graphs and summary statistics.												✓	✓	✓	✓				
Statistical Reasoning	V.C.2	Analyze relationships between paired data using spreadsheets, graphing calculators, or statistical software.												✓							
Statistical Reasoning	V.C.3	Make predictions using summary statistics.														✓					
Statistical Reasoning	V.C.4	Identify and explain misleading uses of data.														✓	✓				
Functions	VI.A.1	Recognition and representation of functions 1. Recognize if a relation is a function.		✓						✓				✓							
Functions	VI.A.2	Recognize and distinguish between different types of functions.												✓							
Functions	VI.B.1	Analysis of functions 1. Understand and analyze features of a functions.		✓						✓											
Functions	VI.B.2	Algebraically construct and analyze new functions.		✓						✓											

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Functions	VI.C.1	Model real-world situations with functions 1. Apply known functions to model real-world situations.		✓						✓				✓							
Functions	VI.C.2	Develop a function to model a situation.		✓						✓				✓							
Problem Solving and Reasoning	VII.A.1	Mathematical problem solving 1. Analyze given information.																			
Problem Solving and Reasoning	VII.A.2	Formulate a plan or strategy.																			
Problem Solving and Reasoning	VII.A.3	Determine a solution.																			
Problem Solving and Reasoning	VII.A.4	Justify the solution.																			
Problem Solving and Reasoning	VII.A.5	Evaluate the problem-solving process.																			
Problem Solving and Reasoning	VII.B.1	Proportional reasoning 1. Use proportional reasoning to solve problems that require fractions, ratios, percentages, decimals, and proportions in a variety of contexts using multiple representations.	✓	✓	✓	✓	✓				✓	✓									

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Problem Solving and Reasoning	VII.C.1	Logical reasoning 1. Develop and evaluate convincing arguments.																			
Problem Solving and Reasoning	VII.C.2	Understand attributes and relationships with inductive and deductive reasoning.																			
Problem Solving and Reasoning	VII.D.1	Real-world problem solving 1. Interpret results of the mathematical problem in terms of the original real- world situation.																			
Problem Solving and Reasoning	VII.D.2	Evaluate the problem-solving process.																			
Communication and Representation	VIII.A.1	Language, terms, and symbols of mathematics 1. Use mathematical symbols, terminology, and notation to represent given and unknown information in a problem.																			
Communication and Representation	VIII.A.2	Use mathematical language to represent and communicate the mathematical concepts in a problem.																			
Communication and Representation	VIII.A.3	Use mathematical language for reasoning, problem solving, making connections, and generalizing.																			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Communication and Representation	VIII.B.1	Interpretation of mathematical work 1. Model and interpret mathematical ideas and concepts using multiple representations.																			
Communication and Representation	VIII.B.2	Summarize and interpret mathematical information provided orally, visually, or in written form within the given context.																			
Communication and Representation	VIII.C.1	Presentation and representation of mathematical work 1. Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, models, graphs, and words.																			
Communication and Representation	VIII.C.2	Create and use representations to organize, record, and communicate mathematical ideas.																			
Communication and Representation	VIII.C.3	Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications.																			
Connections	IX.A.1	Connections among the strands of mathematics 1. Connect and use multiple key concepts of mathematics in situations and problems.																			
Connections	IX.A.2	Connect mathematics to the study of other disciplines.																			

TX Standards			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Connections	IX.B.1	Connections of mathematics to nature, real-world situations, and everyday life 1. Use multiple representations to demonstrate links between mathematical and real-world situations.																			
Connections	IX.B.2	Understand and use appropriate mathematical models in the natural, physical, and social sciences.																			
Connections	IX.B.3	Know and understand the use of mathematics in a variety of careers and professions.																			

Appendix D: Alignments of Science Standards to Digital SAT

Table 29: Science CCRS Aligned to Digital SAT RW Section

Texas CCRS Foundation Skills: Scientific Applications of Communication			Information and Ideas			Craft and Structure			Expression of Ideas		Standard English Conventions	
			Central Ideas and Details	Inferences	Command of Evidence	Words in Context	Text Structure and Purpose	Cross-Text Connections	Rhetorical Synthesis	Transitions	Boundaries	Form, Structure, and Sense
Scientific writing	III.A.1	Use correct applications of writing practices in scientific communication.							✓	✓	✓	✓
Scientific reading	III.B.1	Read technical and scientific articles to gain understanding of interpretations, apparatuses, techniques or procedures, and data.	✓	✓	✓							
Scientific reading	III.B.2	Set up apparatuses, carry out procedures, and collect specified data from a given set of appropriate instructions.										
Scientific reading	III.B.3	Recognize scientific and technical vocabulary in the field of study and use this vocabulary to enhance clarity of communication.	✓	✓		✓			✓			
Scientific reading	III.B.4	List, use, and give examples of specific strategies before, during, and after reading to improve comprehension.										
Presentation of scientific/technical information	III.C.1	Prepare and present scientific/technical information in appropriate formats for various audiences.										
Interactions between innovations and science	III.D.1	Use search engines, databases, and other digital electronic tools effectively to locate information.										
Interactions between innovations and science	III.D.2	Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.			✓			✓				

Table 30: Science CCRS Aligned to Digital SAT Math Section

Texas CCRS Foundation Skills: Scientific Applications of Mathematics			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Basic mathematics conventions	II.A.1.	Understand the real number system and its properties.						*													
Basic mathematics conventions	II.A.2.	Use exponents and scientific notation.						*		*											
Basic mathematics conventions	II.A.3.	Understand ratios, proportions, percentages, and decimal fractions, and translate from any form to any other.									*	*									
Basic mathematics conventions	II.A.4.	Use proportional reasoning to solve problems.									*	*				✓		*	*	*	*
Basic mathematics conventions	II.A.5.	Simplify algebraic expressions.						*	*	*											
Basic mathematics conventions	II.A.6.	Estimate results to evaluate whether a calculated result is reasonable.																			
Basic mathematics conventions	II.A.7.	Use calculators, spreadsheets, computers, etc., in data analysis.																			
Mathematics as a symbolic language	II.B.1.	Carry out formal operations using standard algebraic symbols and formulae.						*	*	*											
Mathematics as a symbolic language	II.B.2.	Represent natural events, processes, and relationships with algebraic expressions and algorithms.	✓	✓	✓	✓	✓			✓											

Texas CCRS Foundation Skills: Scientific Applications of Mathematics			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
Understand relationships among geometry, algebra, and trigonometry	II.C.1.	Understand simple vectors, vector notations, and vector diagrams, and carry out simple calculations involving vectors.																			
Understand relationships among geometry, algebra, and trigonometry trigonometry)	II.C.2.	Understand that a curve drawn on a defined set of axes is fully equivalent to a set of algebraic equations.		*	*	*	*		*	*											
Understand relationships among geometry, algebra, and trigonometry	II.C.3.	Understand basic trigonometric principles, including definitions of terms such as sine, cosine, tangent, cotangent, and their relationship to triangles.																		*	
Understand relationships among geometry, algebra, and trigonometry	II.C.4.	Understand basic geometric principles.																*	*	*	*
Scientific problem solving	II.D.1.	Use dimensional analysis in problem solving.									✓										
Scientific application of probability and statistics	II.E.1.	Understand descriptive statistics.											✓								
Scientific measurement	II.F.1.	Select and use appropriate Standard International (SI) units and prefixes																			

Texas CCRS Foundation Skills: Scientific Applications of Mathematics			Algebra					Advanced Math			Problem Solving and Data Analysis							Geometry and Trigonometry			
			Linear equations in one variable	Linear functions	Linear equations in two variables	Systems of two linear equations in two variables	Linear equations in one or two variables	Equivalent expressions	Nonlinear equations in one variable and systems of equations in two variables	Nonlinear functions	Ratios, rates, proportional relationships, and units	Percentages	One variable data	Two-variable data	Probability and conditional probability	Inference from sample statistics and margin of error	Evaluating statistical claim	Area and volume	Lines, angles, and triangles	Right triangles and trigonometry	Circles
		to express measurements for real world problems.																			
Scientific measurement	II.F.2.	Use appropriate significant digits.																			
Scientific measurement	II.F.3	Understand and use logarithmic notation (base 10).																			

**These skills are directly measured on the SAT, but items in this category may or may not contribute directly to a science sub-score.*