SAT Content Standards correlated with Connecticut Core Mathematics Curricula: Algebra 1, Geometry, and Algebra 2.

Content Dimension	Description	Place in Curriculum
Heart of Algebra		
1. Create, solve, or interpret linear equations in one variable.	The student will create, solve, or interpret a linear expression or equation in one variable that represents a context. The expression or equation will have rational coefficients, and multiple steps may be required to simplify the expression, simplify the equation, or solve for the variable in the equation.	Algebra 1 Unit 2
2. Create, solve, or interpret linear inequalities in one variable	The student will create, solve, or interpret a linear inequality in one variable that represents a context. The inequality will have rational coefficients, and multiple steps may be required to simplify or solve for the variable.	Algebra 1 Unit 2
3. Build a linear function that models a linear relationship between two quantities.	The student will describe a linear relationship that models a context using either an equation in two variables or function notation. The equation or function will have rational coefficients, and multiple steps may be required to build and simplify the equation or function.	Algebra 1 Units 3, 4, 5
4. Create, solve, and interpret systems of two linear inequalities in two variables.	The student will analyze one or more constraints that exist between two variables by creating, solving, or interpreting an inequality in two variables or a system of inequalities in two variables to represent a context. Multiple steps may be required to create the inequality or system of inequalities or to determine whether a given point is in the solution set.	Algebra 2 Unit 1
5. Create, solve, and interpret systems of two linear equations in two variables.	The student will analyze one or more constraints that exist between two variables by creating, solving, or analyzing a system of linear equations to represent a context. The equations will have rational coefficients, and multiple steps may be required to simplify or solve the system.	Algebra 1 Unit 6 Algebra 2 Units 1, 2, 8

6. Solve linear equations in one variable. (fluency)	The student will algebraically solve an equation (or inequality) in one variable. The equation (or inequality) will have rational coefficients and may require multiple steps to solve for the variable; the equation may yield no solution, one solution, or infinitely many solutions. The student may also be asked to determine the value of a constant or coefficient for an equation with no solution or infinitely many solutions.	Algebra 1 Unit 2
7. Solve systems of two linear equations in two variables. (fluency)	The student will algebraically solve a system of two linear equations in two variables. The equations will have rational coefficients, and the system may yield no solution, one solution, or infinitely many solutions. The student may also be asked to determine the value of a constant or coefficient of an equation in which the system has no solution, one solution, or infinitely many solutions.	Algebra 1 Unit 6 Algebra 2 Units 1, 2, 8
8. Interpret the variables and constants in expressions for linear functions within the context presented. (Conceptual Understanding)	The student will make connections between a context and the linear equation that models the context and will identify or describe the real-life meaning of a constant term, a variable, or a feature of the given equation.	Algebra 1 Unit 4, 5, 6
9. Understand connections between algebraic and graphical representations. (Conceptual Understanding)	The student will select a graph described by a given linear equation, select a linear equation that describes a given graph, determine the equation of a line given a verbal description of its graph, determine key features of the graph of a linear function from its equation, or determine how a graph may be impacted by a change in its equation.	Algebra 1 Unit 4
Problem Solving & Data Analysis		
1. Use ratios, rates, proportional relationships, and scale drawings to solve single- and multistep problems.	The student will use a proportional relationship between two variables to solve a multistep problem to determine a ratio or rate; calculate a ratio or rate and then solve a multistep problem; take a given ratio or rate and solve a multistep problem.	Algebra 1 Units 4, 7 Geometry Unit 4 Algebra 2 Units 4, 5, 6

2. Solve single- and multistep problems involving percentages	The student will solve a multistep problem to determine a percentage; calculate a percentage and then solve a multistep problem; take a given percentage and solve a multistep problem.	Algebra 1 Unit 7 Geometry Unit 7 Algebra 2 Unit 5
3. Solve single- and multistep problems involving measurement quantities, units, and unit conversion.	The student will solve a multistep problem to determine a unit rate; calculate a unit rate and then solve a multistep problem; solve a multistep problem to complete a unit conversion; solve a multistep problem to calculate density; use the concept of density to solve a multistep problem.	Geometry Unit 6 Algebra 2 Unit 6
4. Given a scatterplot, use linear, quadratic, or exponential models to describe how the variables are related.	The student will, given a scatterplot, select the equation of a line or curve of best fit; interpret the line in the context of the situation; use the line or curve of best fit to make a prediction.	Algebra 1 Unit 5, 7 Algebra 2 Units 2, 5
5. Use the relationship between two variables to investigate key features of the graph.	The student will make connections between the graphical representation of a relationship and properties of the graph by selecting the graph that represents the properties described; using the graph to identify a value or set of values.	Algebra 1 Unit 4, 7, 8 Algebra 2 Units 1, 2, 3, 4, 5, 6
6. Compare linear growth with exponential growth.	The student will infer the connection between two variables given a context in order to determine what type of model fits best.	Algebra 1 Unit 7 Algebra 2 Units 1, 3, 5
7. Use two-way tables to summarize categorical data and relative frequencies, and calculate conditional probability.	The student will summarize categorical data or use categorical data to calculate conditional frequencies; conditional probabilities; association of variables; independence of events.	Geometry Unit 7
8. Make inferences about population parameters based on sample data.	The student will estimate a population parameter given the results from a random sample of the population. The sample statistics may mention confidence intervals and measurement error that the student should understand and make use of, but need not calculate.	Algebra 2 Unit 7

9. Use statistics to investigate measures of center of data and analyze shape, center, and spread.	The student will calculate measures of center and/or spread for a given set of data or use given statistics to compare two separate sets of data. The measures of center that may be calculated include mean, median, and mode, and the measures of spread that may be calculated include range. When comparing two data sets, the student may investigate mean, median, mode, range, and/or standard deviation.	Algebra 2 Unit 7
10. Evaluate reports to make inferences, justify conclusions, and determine appropriateness of data collection methods.	The student will evaluate reports to make inferences, justify conclusions, and determine appropriateness of data collection methods. The reports may consist of tables, graphs, and text summaries.	Algebra 2 Unit 7
Passport to Advanced Math		
1. Create quadratic or exponential functions. (Applications)	The student will create a quadratic or exponential function or equation that models a context. The equation will have rational coefficients and may require multiple steps to simplify or solve the equation.	Algebra 1 Units 7, 8 Algebra 2 Units 2, 5
2. Choose and produce equivalent forms of expressions to reveal and explain properties of a quantity. (Applications)	The student will, given a context, determine the most suitable form of an expression or equation to reveal a particular trait.	Algebra 1 Unit 2, 4, 8 Algebra 2 units 1, 2, 3, 4, 5
3. Create equivalent expressions involving radicals and rational exponents. (fluency)	The student will create equivalent expressions involving rational exponents and radicals, including simplifying or rewriting in other forms.	Algebra 1 Unit 7 Algebra 2 Units 1, 4
4. Create equivalent forms of expressions by using structure. (fluency)	The student will create an equivalent form of an algebraic expression by using structure and fluency with operations.	Algebra 1 unit 2, 4, 8 Algebra 2 units 1 - 5
5. Solve quadratic equations. (fluency)	The student will solve a quadratic equation having rational coefficients. The equation can be presented in a wide range of forms to reward attending to algebraic structure and can require manipulation in order to solve.	Algebra 1 Unit 8 Algebra 2 Unit 2

6. Perform arithmetic operations on polynomials. (fluency)	The student will add, subtract, and multiply polynomial expressions and simplify the result. The expressions will have rational coefficients.	Algebra 1 Unit 8 Algebra 2 Unit 2, 3
7. Solve radical and rational equations in one variable, including examples where there are extraneous solutions. (fluency)	The student will solve an equation in one variable that contains radicals or contains the variable in the denominator of a fraction. The equation will have rational coefficients, and the student may be required to identify when a resulting solution is extraneous.	Algebra 1 Unit 8; Algebra 2 Unit 2, 4
8. Solve a system of equations consisting of one linear and one quadratic equation in two variables. (fluency)	The student will solve a system of one linear equation and one quadratic equation. The equations will have rational coefficients.	Algebra 2 Unit 2
9. Rewrite simple rational expressions. (fluency)	The student will add, subtract, multiply, or divide two rational expressions or divide two polynomial expressions and simplify the result. The expressions will have rational coefficients.	Algebra 2 Unit 4
10. Interpret parts of nonlinear expressions in terms of their context (conceptual understanding)	The student will make connections between a context and the nonlinear equation that models the context to identify or describe the real-life meaning of a constant term, a variable, or a feature of the given equation.	Algebra 2 Units 2, 3, 4, 5, 6
11. Understand the relationship between zeros and factors of polynomials; use it to sketch graphs. (conceptual understanding)	The student will use properties of factorable polynomials to solve conceptual problems relating to zeros, such as determining whether an expression is a factor of a polynomial based on other information provided	Algebra 2 Unit 3
12. Understand a nonlinear relationship between two variables by making connections between their algebraic and graphical representations. (conceptual understanding)	The student will select a graph corresponding to a given nonlinear equation, interpret graphs in the context of solving systems of equations, select a nonlinear equation corresponding to a given graph, and determine the equation of a curve given a verbal description of a graph, determine key features of the graph of a linear function from its equation, or determine the impact to a graph of a change in the defining equation.	Algebra 1 Units 3, 4, 7, 8 Algebra 2 Units 1, 2, 3, 4, 5, 6

13. Use function notation, and interpret statements using function notation. (conceptual understanding)	The student will use function notation to solve conceptual problems related to transformations and compositions of functions.	Algebra 1 Units 3, 4, 5, 6, 7 8 Algebra 2 Units 1, 2, 3, 4, 5, 6
14. Use structure to isolate or identify a quantity of interest in an expression or isolate a quantity of interest in an equation. (conceptual understanding)	The student will rearrange an equation or formula to isolate a single variable or a quantity of interest.	Algebra 1 Unit 2, 4, 8 Algebra 2 Units 1, 2, 3, 5
Additional Topics		
1. 1. Solve problems using volume formulas	The student will use given information about figures, such as length of a side, area of a face, or volume of a solid, to calculate missing information. Any required volume formulas will be provided to students either on the formula sheet or within the question.	Geometry Unit 6
2. Use trigonometric ratios and the Pythagorean Theorem to solve applied problems involving right triangles. (application)	The student will use information about triangle side lengths or angles presented in a context to calculate missing information using the Pythagorean theorem and/or trigonometric ratios.	Geometry Units 1, 4 Algebra 2 Unit 6
3. Perform arithmetic operations on complex numbers. (fluency)	The student will add, subtract, multiply, divide, and simplify complex numbers.	Algebra 2 Unit 2
4. Convert between degrees and radians and use radians to determine arc lengths; use trigonometric functions of radian measure. (fluency)	The student will convert between angle measures in degrees and radians in order to calculate arc lengths by recognizing the relationship between an angle measured in radians and an arc length, evaluating trigonometric functions of angles in radians.	Geometry Unit 5 Algebra 2 Unit 6
5. Apply theorems about circles to find arc lengths, angle measures, chord lengths and areas of sectors	The student will use theorems about triangles and intersecting lines to determine missing lengths and angle measures in triangles. The student may also be asked to provide a missing length or length or angle to satisfy a given theorem.	Geometry Unit 5
6. Use concepts and theorems about congruence and similarity to solve problems about lines, angles, and triangles	The student will use theorems about triangles and intersecting lines to determine missing lengths and angle measures in triangles. The student may also be asked to provide a missing length or length or angle to satisfy a given theorem.	Geometry Units 2, 3, 4

7. Use the relationship between similarity, right triangles, and trigonometric ratios; use the relationship between sine and cosine of complementary angles. (conceptual understanding)	The student will use trigonometry and theorems about triangles and intersecting lines to determine missing lengths and angle measures of right triangles. The student may also be asked to provide a missing length or angle that would satisfy a given theorem.	Geometry Unit 4 Algebra 2 Unit 6
8. Create or use an equation in two variables to solve a problem about a circle in the coordinate plane. (conceptual understanding)	The student will create an equation or use properties of an equation of a circle to demonstrate or determine a property of the circle's graph.	Geometry Unit 5 Algebra 2 Units 1, 6