SAT® Tutorials are built specifically for the Redesigned SAT (2016) with consideration of SAT's test specifications to provide students a more successful and less stressful preparation effort for key areas of the SAT exam.

SAT Math, Writing and Language, and Reading Tutorials offer targeted instruction, practice, and review. Students engage with the content in an interactive, feedback-rich environment as they progress through SAT test aligned modules. Students practice skills essential to the test they're preparing for and build the depth of knowledge, confidence, and higher order skills required to demonstrate mastery when put to the test.

In each module, the Learn It and Try It make complex ideas accessible to students through focused content, guided analysis, and practice with personalized feedback so students are empowered to increase their Exam Readiness. The Review It offers an engaging and high impact video summary of key concepts and important to grasp connections. The Test It assesses students' mastery of the module's concepts, providing granular performance data to students and teachers, linking a student's performance to SAT content dimension descriptions. To help students focus on the content most relevant to them, unit-level pretests and posttests can quickly identify where students are ready for test day and where they still need to review and practice.

This Tutorial is aligned with Redesigned SAT test specifications for Math and Evidence-Based Reading and Writing tests.

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1. EXPONENTS AND PROPORTIONS

- **LAWS OF EXPONENTS**
  - **3.B.3.1** *The student will create equivalent expressions involving rational exponents and radicals, including simplifying or rewriting in other forms.*
  - **3.B.4.1** *The student will create an equivalent form of an algebraic expression by using structure and fluency with operations.*

- **UNIT RATES**
  - **2.A.3.1** *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.*

- **UNIT CONVERSIONS**
  - **2.A.3.1** *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.*

- **USING PROPORTIONS TO SOLVE PROBLEMS**
  - **2.A.1.1** *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.*
  - **2.A.2.1** *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.*

2. EXPRESSIONS, EQUATIONS, AND INEQUALITIES

- **FORMULATING AND SIMPLIFYING ALGEBRAIC EXPRESSIONS**
  - **1.A.1.1** *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.*
  - **3.B.4.1** *The student will create an equivalent form of an algebraic expression by using structure and fluency with operations.*

- **ONE-STEP EQUATIONS AND INEQUALITIES**
  - **1.A.1.1** *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.*
  - **1.A.2.1** *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.*
  - **1.A.4.1** *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.*
  - **1.B.6.1** *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.*

- **MULTI-STEP EQUATIONS AND INEQUALITIES**
  - **1.A.1.1** *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.*
  - **1.A.2.1** *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.*
  - **1.A.4.1** *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.*
  - **1.B.6.1** *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.*

3. APPLYING EQUATIONS AND INEQUALITIES

- **LITERAL EQUATIONS**
  - **3.C.14.1** *The student will rearrange an equation or formula to isolate a single variable or a quantity of interest.*

- **FORMULATING AND SOLVING EQUATIONS FROM WORD PROBLEMS**
  - **1.A.3.1** *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.*
  - **1.C.8.1** *The student will make connections between a context and the linear equation hat 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.*

- **FORMULATING AND SOLVING INEQUALITIES FROM WORD PROBLEMS**
  - **1.A.4.1** *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.*

4. RATIONAL AND RADICAL EXPRESSIONS AND EQUATIONS

- **OPERATIONS WITH RATIONAL EXPRESSIONS**

- 3.B.9.1 *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.*

- **SOLVING RATIONAL EQUATIONS**

  - 3.B.7.1 *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.*

- **SOLVING SQUARE ROOT EQUATIONS**

  - 3.B.7.1 *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.*

5. LINEAR FUNCTIONS AND EQUATIONS

- **GRAPHING AND ANALYZING LINEAR FUNCTIONS**

  - 1.A.3.1 *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.*
  - 1.C.8.1 *The student will make connections between a context and the linear equation hat 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.*
  - 1.C.9.1 *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.*
  - 2.A.5.1 *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.*
  - 3.C.12.1 *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, 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.*

- **SLOPE-INTERCEPT FORM OF A LINEAR EQUATION**

  - 1.C.9.1 *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.*
  - 3.A.2.1 *The student will, given a context, determine the most suitable form of an expression or equation to reveal a particular trait.*

- **POINT-SLOPE FORM OF A LINEAR EQUATION**

  - 1.A.3.1 *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.*
  - 1.C.9.1 *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.*

- **GRAPHING AND MANIPULATING Y = MX + B**

  - 3.C.12.1 *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, 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.*

6. TWO-VARIABLE LINEAR SYSTEMS

- **SOLVING SYSTEMS OF LINEAR EQUATIONS: GUESS AND CHECK**

- 1.A.5.1 *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.*
- 1.B.7.1 *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.*

- **SOLVING SYSTEMS OF LINEAR EQUATIONS: GRAPHING**
  - 1.A.5.1 *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.*
  - 1.B.7.1 *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.*

- **SOLVING SYSTEMS OF LINEAR EQUATIONS: SUBSTITUTION**
  - 1.A.5.1 *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.*
  - 1.B.7.1 *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.*

- **SOLVING SYSTEMS OF LINEAR EQUATIONS: ELIMINATION**
  - 1.A.5.1 *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.*
  - 1.B.7.1 *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.*

7. SYSTEMS OF EQUATIONS

- **SOLVING SYSTEMS OF LINEAR INEQUALITIES**
  - 1.A.4.1 *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.*

- **SOLVING THREE-VARIABLE SYSTEMS OF LINEAR EQUATIONS**
  - 1.A.4.1 *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.*

- **SYSTEMS OF NONLINEAR EQUATIONS**
  - 3.B.8.1 *The student will solve a system of one linear equation and one quadratic equation. The equations will have rational coefficients.*
  - 3.C.12.1 *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, 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.*

8. EXPONENTIAL FUNCTIONS

- ## EXPONENTIAL FUNCTIONS
  - **3.C.10.1** *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.*
  - **3.A.1.1** *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.*
  - **3.C.12.1** *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, 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.*

- ## EXPONENTIAL GROWTH AND DECAY
  - **3.C.10.1** *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.*
  - **2.A.6.1** *The student will infer the connection between two variables given a context in order to determine what type of model fits best.*

9. POLYNOMIALS

- ## ADDITION AND SUBTRACTION OF POLYNOMIALS
  - **3.B.6.1** *The student will add, subtract, and multiply polynomial expressions and simplify the result. The expressions will have rational coefficients.*

- ## MULTIPLICATION OF POLYNOMIALS
  - **3.B.6.1** *The student will add, subtract, and multiply polynomial expressions and simplify the result. The expressions will have rational coefficients.*

- ## FACTORING HIGHER-ORDER POLYNOMIALS
  - **3.C.11.1** *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.*

- ## FACTOR THEOREM AND REMAINDER THEOREM
  - **3.C.11.1** *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.*

10. SOLVING QUADRATIC EQUATIONS

- ## SOLVING QUADRATIC EQUATIONS BY FACTORING
  - **3.B.5.1** *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.*

- ## COMPLETING THE SQUARE
  - **3.B.5.1** *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.*

- ## QUADRATIC FORMULA
  - **3.B.5.1** *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.*

11. QUADRATIC FUNCTIONS AND COMPLEX NUMBERS

- ## QUADRATIC FUNCTIONS

- **3.A.1.1** *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.*
- **3.B.5.1** *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.*

- **ANALYZING GRAPHS OF QUADRATIC FUNCTIONS**
  - **2.A.5.1** *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.*

- **COMPLEX NUMBERS**
  - **4.B.3.1** *The student will add, subtract, multiply, divide, and simplify complex numbers.*

- **REPRESENTATIONS OF QUADRATIC FUNCTIONS**
  - **3.A.1.1** *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.*
  - **3.A.2.1** *The student will, given a context, determine the most suitable form of an expression or equation to reveal a particular trait.*
  - **3.C.10.1** *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.*
  - **3.C.12.1** *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, 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.*

12. TRANSFORMING FUNCTIONS

- **PARENT FUNCTIONS**
  - **3.C.13.1** *The student will use function notation to solve conceptual problems related to transformations and compositions of functions.*

- **TRANSFORMATION OF PARENT FUNCTIONS**
  - **3.C.13.1** *The student will use function notation to solve conceptual problems related to transformations and compositions of functions.*

- **MULTIPLE TRANSFORMATIONS OF PARENT FUNCTIONS**
  - **3.C.13.1** *The student will use function notation to solve conceptual problems related to transformations and compositions of functions.*

13. TRIANGLES

- **PYTHAGOREAN THEOREM**
  - **4.A.2.1** *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.*

- **TRIANGLE BISECTORS**
  - **4.C.6.1** *The student will use theorems about triangles and intersecting lines to determine missing lengths and angle measures of triangles. The student may also be asked to provide a missing length or angle to satisfy a given theorem.*

- **MEDIANS AND ALTITUDES OF TRIANGLES**
  - **4.C.6.1** *The student will use theorems about triangles and intersecting lines to determine missing lengths and angle measures of triangles. The student may also be asked to provide a missing length or angle to satisfy a given theorem.*

14. TRIGONOMETRY

- ## TRIGONOMETRIC RATIOS

  - *4.A.2.1 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.*
  - *4.C.7.1 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.*

- ## LAWS OF SINE AND COSINE

  - *4.A.2.1 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.*

- ## RADIANS AND THE UNIT CIRCLE

  - *4.B.4.1 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.*

15. CIRCLE BASICS

- ## CIRCLE BASICS

  - *4.B.5.1 The student will use given information about circles and lines to calculate missing values for radius, diameter, chord length, angle, arc, and sector area.*

- ## CENTRAL ANGLES, INSCRIBED ANGLES, AND CHORDS

  - *4.B.5.1 The student will use given information about circles and lines to calculate missing values for radius, diameter, chord length, angle, arc, and sector area.*

- ## SECANTS, ANGLES, AND INTERCEPTED ARCS

  - *4.B.5.1 The student will use given information about circles and lines to calculate missing values for radius, diameter, chord length, angle, arc, and sector area.*

- ## TANGENTS, ANGLES, AND INTERCEPTED ARCS

  - *4.B.5.1 The student will use given information about circles and lines to calculate missing values for radius, diameter, chord length, angle, arc, and sector area.*

16. CIRCLES

- ## CIRCUMFERENCE AND ARC LENGTH

  - *4.B.5.1 The student will use given information about circles and lines to calculate missing values for radius, diameter, chord length, angle, arc, and sector area.*

- ## AREA OF CIRCLES AND SECTORS

  - *4.B.5.1 The student will use given information about circles and lines to calculate missing values for radius, diameter, chord length, angle, arc, and sector area.*

- ## CIRCLES

  - *4.C.8.1 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.*

17. VOLUME OF THREE-DIMENSIONAL FIGURES

- **VOLUME OF PRISMS AND PYRAMIDS**
  - **4.A.1.1** *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.*

- **VOLUME OF CYLINDERS AND CONES**
  - **4.A.1.1** *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.*

- **SURFACE AREA AND VOLUME OF SPHERES**
  - **4.A.1.1** *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.*

18. STATISTICAL DESIGN AND ANALYSIS

- **ANALYZING STATISTICAL SAMPLES**
  - **2.A.8.1** *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.*

- **EXPERIMENTAL AND OBSERVATIONAL DESIGN**
  - **2.A.10.1** *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.*

19. STATISTICS

- **DATA ANALYSIS**
  - **2.A.9.1** *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.*

- **FREQUENCY TABLES**
  - **2.A.7.1** *The student will summarize categorical data or use categorical data to calculate conditional frequencies; conditional probabilities; association of variables; independence of events.*

- **SCATTERPLOTS AND MODELING**
  - **2.A.4.1** *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.*