

Options SAT Prep: Mathematics**Scope and Sequence****Unit Lesson****Objectives****Diagnostic PreTest**

TEST

Algebra Review

Solving Rate Problems

Use a table to organize information given in time-distance-rate and work problems.

Write and solve one-variable linear equations to model and solve time-distance-rate and work problems.

Inequalities

Solve one-variable linear inequalities, including compound inequalities, and represent the solution sets graphically and algebraically.

Create one-variable linear inequalities in one variable and use them to solve problems.

Writing and Solving Equations in
Two Variables

Solve for an unknown quantity in a two-variable linear equation, given one of the values.

Determine a two-variable linear equation that represents a scenario, identifying constraints on the variables in terms of the context.

Modeling with Linear Systems

Model and solve real-world problems using systems of linear equations and inequalities.

Linear Programming

Maximize a function given constraints.

Represent and solve real-world problems using linear programming.

Solving Linear Equations:
Distributive Property

Unit Lesson**Objectives**

Solve one-variable linear equations involving the distributive property.

Determine if a one-variable linear equation has zero, one, or infinite solutions.

Create one-variable linear equations involving the distributive property to model and solve problems.

Introduction to Systems of Linear Equations

Create a system of linear equations to model a problem.

Solve a system of linear equations graphically, using technology as a tool for finding the solution, when appropriate.

Interpret the solution of a system of linear equations in a modeling context.

Writing and Graphing Equations in Two Variables

Construct a table of values and a graph for a two-variable linear equation that models a situation, pointing out solutions that are viable or not viable based on the context.

Write a two-variable linear equation to model a quantitative relationship, describing the constraints of the model based on the context.

Interpret graphs and rates by examining the quantities represented by each axis.

Point-Slope Form of a Line

Write the equation of a line given its slope and a point on the line in point-slope form, and express the relationship as a function.

Graph a line given its equation in point-slope form, identifying the slope and intercepts.

Test

Problem Solving and Data Analysis

Changing a Scale

Solve problems involving reproducing a scale drawing using a different scale.

Solving Mixture Problems

Unit Lesson**Objectives**

Use a table to organize information given in mixture problems.

Write and solve one-variable linear equations to model and solve mixture problems.

Applications of Percent

Solve multistep percent problems involving tax, gratuity, commission, markup, discount, and markdown.

Dimensional Analysis

Use dimensional analysis to convert units and compare quantities, attending to limitations on the unit of measurement.

Regression Models

Determine an exponential, quadratic, or linear model for a given data set using technology.

Identify limitations of models in real-world contexts.

Use a linear, quadratic, or exponential regression model to make a prediction.

Interpret the graph of a regression model in the context of the problem.

Analyzing Graphs

Use the graph of a function to determine the key aspects, using interval notation where applicable.

Linear Growth vs. Exponential Growth

Use tables and graphs to compare the growth of an exponential function vs. a linear function over equal intervals.

Use tables and graphs to show that exponential functions grow by equal factors over equal intervals.

Conditional Probability

Use calculations to determine if two events are independent.

Calculate conditional probabilities using formulas and Venn diagrams.

Calculate probabilities of compound events.

Probability and Two-Way Tables

Unit Lesson**Objectives**

Construct a two-way table.

Use a two-way table to determine if two events are independent.

Compute conditional probabilities from data displayed in a two-way table.

Statistical Inferences

Make inferences about a population from a sample.

Representing Data

Describe a data set using measures of central tendency and range.

Determine if a representation of data is misleading.

Standard Deviation

Calculate variance and standard deviation for a given data set.

Analyze histograms for skewness and symmetry.

Analyze a normal distribution curve to determine statistical measures.

Designing a Study

Classify study types.

Classify sampling methods.

Determine if a sample is biased.

Analyze study types and sampling methods.

Additional Topics

Cavalieri's Principle and Volume of Composite Figures

Write an expression to represent the volume of a composite figure.

Calculate the volumes of composite figures, including those that model real-world objects.

Unit Lesson**Objectives**

Solving for Side Lengths of Right Triangles

Write equations using trigonometric ratios that can be used to solve for unknown side lengths of right triangles.

Solve for unknown side lengths of right triangles using trigonometric ratios.

Apply trigonometric ratios to solve real-world problems.

Operations with Complex Numbers

Identify the field properties of complex numbers.

Perform addition, subtraction, and multiplication of complex numbers.

Circumference and Arc Length

Solve problems involving circumference of a circle.

Determine the radian measure of a central angle.

Solve problems involving arc length with central angles measured in degrees.

Solve problems involving arc length with central angles measured in radians.

Area of a Circle and a Sector

Solve problems involving area of a circle.

Solve problems involving area of a sector with central angles measured in radians.

Solve problems involving area of a sector with central angles measured in degrees.

Special Segments

Solve problems involving segments formed by two intersecting chords.

Solve problems involving segments formed by two secants which intersect outside a circle.

Solve problems involving segments formed by two intersecting tangents.

Solve problems involving segments formed by a secant and a tangent which intersect outside a circle.

Congruent Figures

Unit Lesson**Objectives**

Write congruency statements for transformed figures.

Determine if figures are congruent and, if so, identify their corresponding parts.

Determine unknown measures of congruent figures.

Using Triangle Similarity Theorems

Complete the steps to prove theorems involving similar triangles.

Solve for unknown measures of similar triangles using the side-splitter theorem and its converse.

Solve for unknown measures of similar triangles using the triangle midsegment theorem.

Right Triangle Trigonometry

Use the Pythagorean theorem, and the trigonometric functions and their inverses to solve right triangles.

Use special right triangle relationships to solve right triangles.

Equation of a Circle

Identify the center and radius from the equation of a circle, including equations given in general form.

Determine the equation of a circle.

Determine if a given point lies on a circle.

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