

Unit	Lesson	Lesson Objectives
Heart of Algebra		
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		
Create one-variable linear inequalities in one variable and use them to solve problems.		
Solve one-variable linear inequalities, including compound inequalities, and represent the solution sets graphically and algebraically.		
Writing and Solving Equations in Two Variables		
Determine a two-variable linear equation that represents a scenario, identifying constraints on the variables in terms of the context.		
Solve for an unknown quantity in a two-variable linear equation, given one of the values.		
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		
Create one-variable linear equations involving the distributive property to model and solve problems.		
Determine if a one-variable linear equation has zero, one, or infinite solutions.		
Solve one-variable linear equations involving the distributive property.		
Introduction to Systems of Linear Equations		
Create a system of linear equations to model a problem.		
Interpret the solution of a system of linear equations in a modeling context.		
Solve a system of linear equations graphically, using technology as a tool for finding the solution, when appropriate.		
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.		
Interpret graphs and rates by examining the quantities represented by each axis.		
Write a two-variable linear equation to model a quantitative relationship, describing the constraints of the model based on the context.		
Point-Slope Form of a Line		
Graph a line given its equation in point-slope form, identifying the slope and intercepts.		
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.		
Problem Solving and Data Analysis		
Changing a Scale		
Solve problems involving reproducing a scale drawing using a different scale.		

Unit	Lesson	Lesson Objectives
		Solving Mixture Problems 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. Interpret the graph of a regression model in the context of the problem. Use a linear, quadratic, or exponential regression model to make a prediction.
		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 Calculate conditional probabilities using formulas and Venn diagrams. Calculate probabilities of compound events. Use calculations to determine if two events are independent.
		Probability and Two-Way Tables Compute conditional probabilities from data displayed in a two-way table. Construct a two-way table. Use a two-way table to determine if two events are independent.
		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 Analyze a normal distribution curve to determine statistical measures. Analyze histograms for skewness and symmetry. Calculate variance and standard deviation for a given data set.

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Designing a Study

- Analyze study types and sampling methods.
- Classify sampling methods.
- Classify study types.
- Determine if a sample is biased.

Passport to Advanced Mathematics

Exponential Growth Functions

- Graph an exponential growth function, and state the domain and range.
- Identify an exponential growth function given tables, graphs, and function rules, determining the rate of change.
- State the domain and range of an exponential growth function.
- Write an exponential growth function to model a real-world problem, pointing out constraints in the modeling context.

Solving Exponential Equations by Rewriting the Base

- Solve exponential equations by rewriting bases.

Radical Equations and Extraneous Roots

- Model and solve mathematical and real-world problems using radical equations, and determine extraneous roots.

Composition of Polynomial Functions

- Evaluate the composition of polynomial functions.
- Write the composition of polynomial functions.

Modeling with Quadratic Equations

- Use quadratic equations to model and solve real-world problems.

Simplifying Polynomial Expressions

- Simplify expressions involving operations with polynomials.

Solving One-Variable Equations with Systems

- Solve a one-variable linear or quadratic equation by graphing a related system of equations.

Rational Equations

- Solve rational equations and determine extraneous solutions.
- Use rational equations to model and solve real-world problems.

Graphing Polynomial Functions

- Graph polynomial functions using key features.

Literal Equations

- Determine if expressions are equivalent.
- Solve a literal equation in terms of a given variable.

Additional Topics in Math

Cavalieri's Principle and Volume of Composite Figures

- Calculate the volumes of composite figures, including those that model real-world objects.
- Write an expression to represent the volume of a composite figure.

Unit	Lesson	Lesson Objectives
		Solving for Side Lengths of Right Triangles <ul style="list-style-type: none">Apply trigonometric ratios to solve real-world problems.Solve for unknown side lengths of right triangles using trigonometric ratios.Write equations using trigonometric ratios that can be used to solve for unknown side lengths of right triangles.
		Operations with Complex Numbers <ul style="list-style-type: none">Identify the field properties of complex numbers.Perform addition, subtraction, and multiplication of complex numbers.
		Circumference and Arc Length <ul style="list-style-type: none">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.Solve problems involving circumference of a circle.
		Area of a Circle and a Sector <ul style="list-style-type: none">Solve problems involving area of a circle.Solve problems involving area of a sector with central angles measured in degrees.Solve problems involving area of a sector with central angles measured in radians.
		Special Segments <ul style="list-style-type: none">Solve problems involving segments formed by a secant and a tangent which intersect outside a circle.Solve problems involving segments formed by two intersecting chords.Solve problems involving segments formed by two intersecting tangents.Solve problems involving segments formed by two secants which intersect outside a circle.
		Congruent Figures <ul style="list-style-type: none">Determine if figures are congruent and, if so, identify their corresponding parts.Determine unknown measures of congruent figures.Write congruency statements for transformed figures.
		Using Triangle Similarity Theorems <ul style="list-style-type: none">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 <ul style="list-style-type: none">Use special right triangle relationships to solve right triangles.Use the Pythagorean theorem, and the trigonometric functions and their inverses to solve right triangles.
		Equation of a Circle <ul style="list-style-type: none">Determine if a given point lies on a circle.Determine the equation of a circle.Identify the center and radius from the equation of a circle, including equations given in general form.