

7th Grade Pre-Algebra Final Test Study Guide

Chapter 1

- Recognize and Describe Number Patterns
- Use the four basic number operations.
- Evaluate powers.
- Use square roots.
- Use the order of operations to simplify expressions that have grouping symbols.
- Evaluate expressions that contain variables.
- Use tables and graphs to organize data.
- Identify polygons and their parts.

Chapter 2

- Use the Distributive Property with variables.
- Simplify expressions by adding like terms.
- Check to see if a number is a solution of an equation.
- Solve equations with addition, subtractions, multiplication, and division.
- Translate verbal phrases into algebraic expressions.
- Translate verbal sentences into algebraic equations.
- Solve simple inequalities.

Chapter 3

- Find the absolute value of a number.
- Add two or more integers.
- Simplify expressions by adding or subtracting like terms.
- Subtract two or more integers.
- Multiply integers.
- Divide integers.
- Solve equations that include integers.
- Plot points in a coordinate plane.
- Use a coordinate plane to represent data graphically.

Chapter 4

- Solve two step equations
- Solve multi-step equations
- Use the Distributive Property to solve equations
- Solve equations with variables on both sides.
- Use simple geometric figures to estimate area.

Probability

- Calculate the probability of an event.
- Use the counting principle.
- Use Pascal's Triangle to count the number of ways an event can happen.
- Compare theoretical and experimental probabilities.
- Find the probabilities of compound events (dependent and independent).
- Use a Venn diagram to represent data and calculate probability.
- Use combinations and permutations to count outcomes.

Statistics

- Read and make pictographs
- Read and make time lines.
- Use bar graphs to represent data.
- Use histograms to represent data.
- Use line graphs to represent data.
- Recognize misleading graphs.
- Use line plots to organize data.
- Use a scatter plot to see patterns in data.
- Find the mean, median, and mode of a collection of numbers.
- Draw a stem-and-leaf plot.
- Recognize misleading statistics.

Chapter 6

- Use the divisibility tests.
- Factor natural numbers.
- Classify natural numbers as prime or composite.
- Factor integers and algebraic expressions.
- Greatest common factor of two expressions
- Least common multiple of two expressions.
- Simplify a fraction.
- Compare two fractions.
- Show that a number is rational.
- Write a repeating decimal as a fraction.
- Evaluate powers that have negative and zero exponents.
- Multiply and divide powers.
- Scientific notation to represent numbers.

Chapter 7

- Add and subtract like fractions.
- Add and subtract unlike fractions.
- Combine fractions by writing the fractions as decimals.
- Multiply rational numbers.
- Divide rational numbers.
- Write portions as percents.
- Write percents as decimals and decimals as percents.
- Write fractions as percents and percents as fractions.
- Find a percent of a number.
- Use percents to help organize data.

Chapter 8

- Find rates and ratios.
- Solve proportions.
- Write proportions for similar triangles.
- Find what percent one number is of another.
- Solve a percent equation.
- Use percents to find discounts.
- Find a percent of increase.
- Find a percent of decrease.
- Solve problems involving compound and simple interest.

Chapter 9

- Solve equations whose solutions are square roots.
- Classify real numbers as rational or irrational.
- Use the Pythagorean Theorem
- Graph an inequality.
- Write equivalent inequalities.
- Solve multi-step inequalities.
- Use the Triangle Inequality to estimate the length of the third side of a triangle.

Chapter 10

- Identify points, lines, and planes.
- Measure and identify angles.
- Identify angles formed when two parallel lines intersect a third line.
- Identify rotational symmetry.
- Identify line symmetry.
- Classify triangles by their sides and angles.
- Identify quadrilaterals.
- Recognize congruent polygons.
- Identify regular polygons.
- Identify interior and exterior angles of a polygon.
- Find the measures of the angles of a polygon.
- Compare side lengths and angle measures of a triangle.
- Find the angle measures of an isosceles triangle.

Chapter 11

- Find the areas of parallelograms and trapezoids.
- Determine whether two figures are congruent.
- Reflect a figure in a line.
- Rotate a figure in a coordinate plane.
- Translate a figure in a plane.
- Recognize similar figures.
- Compare area and perimeters of similar figures.
- Find trigonometric ratios.
- Use the Pythagorean Theorem to find trigonometric ratios.

Chapter 12

- Find the circumference of a circle.
- Find the area of a circle.
- Build and describe polyhedrons.
- Identify and draw solids.
- Find the surface area of a prism and a cylinder.
- Find the volume of a prism.
- Find the volume of a cylinder.
- Find the volume of a pyramid and a cone.
- Find complicated volumes.
- Find the volume of a sphere.
- Compare the surface areas and volumes of similar solids.

Chapter 13

- Find solutions of a linear equation with two variables.
- Use a table of values to sketch the graph of a linear equation.
- Recognize graphs of horizontal and vertical lines.
- Find the distance between two points.
- Find the midpoint of a line segment.
- Find the intercepts of lines.
- Use intercepts to sketch a quick graph.
- Find and interpret the slope of line.
- Find the slope and y-intercept of a line from its equation.
- Use the slope-intercept form to sketch a quick graph.