

Freshman entering Algebra 1

Student Expectations

Vocabulary

Variable	Coefficient	constant	Evaluate	Substitution
Absolute value	Integer	Real number	Rational number	Numerator
Denominator	Simplify	Function	Ordered pair	Graph
Table	Equation	Coordinate plane	x-axis	y-axis
Origin	Domain	range	Exponents	Scientific notation
Square root	Power	Base	Irrational number	Ratio
Proportion	Similarity	Scale	Dilation	Scale factor
Percent	Points	Lines	Planes	Segment
ray	Parallel	Perpendicular	Perimeter	Circumference
Area	Volume	Surface area	Radius	Diameter
Pi	Sample space	Data	Bar graph	Histogram
Mean	Median	Mode	Outcomes	Polygon
Parallel	Perpendicular			

Pre-Algebra

Students will be able to:

- Evaluate an algebraic expression, substitute a given number for the variable, and find the value of the resulting numerical expression
- Write an algebraic expression that represent a given word expression
- Solve one and two step equations with rational numbers
- Use percent as a decimal in equations given problem solving situations

Numbers and operations

Students will be able to:

- Apply the rules for adding, subtracting, multiplying, and dividing rational numbers (integers, fractions, and decimals)
- Use exponents, scientific notation, squares and square roots, and real numbers in problem solving situations
- Use order of operations to simplify expressions
- Understand and apply properties of exponents with integers
- Understand the relationship between real, rational, irrational, integer, whole numbers, and natural numbers
- Represent percent as a decimal and fraction

Graphing

Student will be able to:

- Plot ordered pairs in the coordinate plane
- Generate a set of ordered pairs for an equations
- Represent relationships in many ways, including tables, graphs, and equations
- Generate table of inputs and outputs to an equation and sketch the graph of an equation using a table
- Understand a graph of an equation is the set of all ordered pairs that are solutions of the equation
- Interpret information given in a graph or a table and generate a graph given a set of data to help solve problems

Proportional Reasoning

Student will be able to:

- Understand relationship between ratios and proportions
- Work with and setup ratios and proportions
- Setup and solve problems involving proportions
- Determine if a problem situation is proportional or non-proportional
- Use scale factor to produce dilations that are reductions and enlargements
- Understand percent as a ratio
- Apply percent of increase and decrease in problem situations
- Find solutions to application problems involving percent including simple interest
- Understand rates as a ratio of two units

Measurement

Student will be able to:

- Use the Pythagorean Theorem and apply the theorem in problem solving situations
- Select and use appropriate formulas for perimeter and area of geometric figures
- Select and use the appropriate formula for the circumference and area of a circle
- Select and use appropriate formulas for the volume and surface area of pyramids, cones, prisms, sphere, and cylinders
- Apply all geometric formulas in problem solving situations
- Understand similar figures, dilations, and indirect measurement in 2-dimensional and 3-dimensional figures

Geometry

Students will be able to:

- Classify and name geometric figures including different types of triangles and quadrilaterals
- Understand and apply knowledge of complementary and supplementary angles to find angle measurements
- Identify and perform the following transformations: translations, rotation, and reflection in the coordinate plane
- Identify parallel and perpendicular lines and understand their meaning
- Draw 3-D figures and scale drawings

Data/Statistics/Probability

- Calculate and determine the appropriate measure of central tendency (mean, median, and mode) to use when analyzing data
- Identify misleading graphs and to explain how the data is inaccurate
- Select and use an appropriate representation for presenting and displaying relationships among collected data, including frequency table, line plots, line graphs, stem and leaf plots, circle graphs, bar graphs, box and whisker plots, histograms, and Venn diagrams
- Understand and apply experimental probability, theoretical probability, and the Fundamental Counting Principle
- Draw conclusion and make predictions using scatter plots