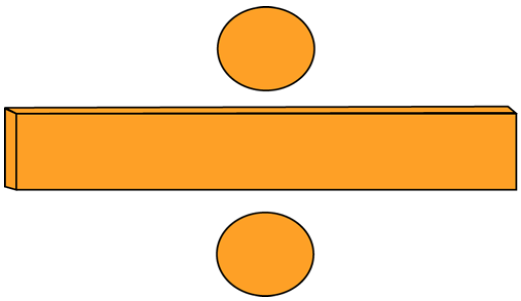
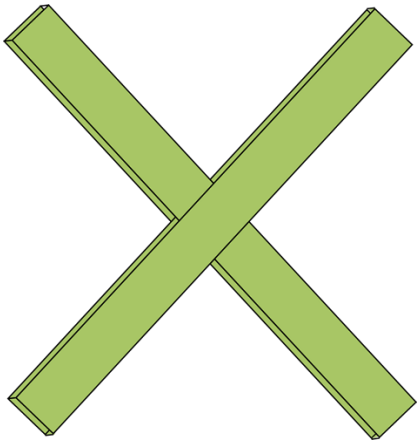
The Number System

8th Grade—"I Can Do Math"

I can approximate non rational numbers by rational numbers.

8. NS. 1 □ I can show that every number has a decimal.
8. NS. 1 □ I can change every repeating decimal into a rational number.
8. NS. 1 □ I can show that the decimal expansion eventually repeats for rational numbers.
8. NS. 1 □ I can change a repeating decimal expansion into a rational number.
8. NS. 2 □ I can use rational approximations of irrational numbers to compare the size of irrational numbers, locate, and plot them approximately on a number line diagram, and then estimate the value of the expressions.
8. NS. 2 □ I can use estimate values to compare two or more irrational numbers.
8. NS. 3 □ I can perform operations and simplify radical numbers using square roots.





Expressions & Equations

8th Grade—"I Can Do Math"

I can work with radicals and integer exponents.

8. EE. 1 □ I can use the properties of integer exponents to simplify expressions.

8. EE. 2 □ I can use square and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number.

8. EE. 2 □ I can evaluate that the square root of 2 is irrational.

8. EE. 2 □ I can write an estimation of a large quantity by expressing it as the product of a single-digit number and a positive power of ten.

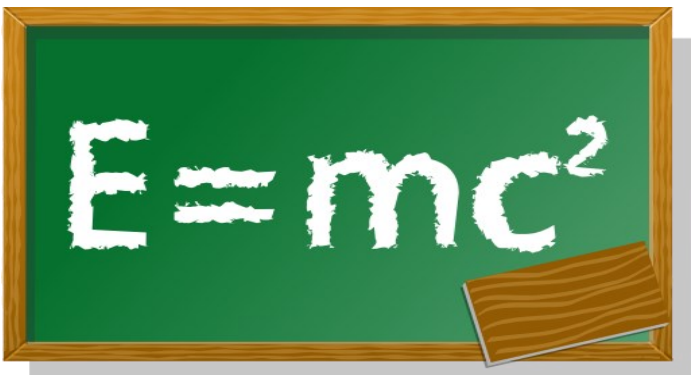
8. EE. 3 □ I can write an estimation of a very small quantity by expressing it as the product of a single-digit number and a negative power of ten.

8. EE. 3 □ I can compare quantities written as the product of a single-digit number and a power of ten.

8. EE. 4 □ I can solve operations (=, -, x, /) with two numbers expressed in scientific notation, including problems that have both decimals and scientific notation.

8. EE. 4 □ I can use scientific notation and choose units of appropriate size for very large or very small measurements.

8. EE. 5 □ I can interpret scientific notation that has been generated by technology.



Expressions & Equations (cont.)

8th Grade—"I Can Do Math"

I can understand the connections between proportional relationships, lines, and linear equations.

8. EE. 5 □ I can graph proportional relationships, interpreting the unit rate as the slope of the graph.

8. EE. 5 □ I can use a table, an equation, or graph to decide the unit rate of a proportional relationship.

8. EE. 5 □ I can use the unit rate of a graphed proportional unit rate to compare different proportional relationships.

8. EE. 6 □ I can use similar triangles to explain why the slope *m* is the same between two points on a non-vertical line in a coordinate plane.

8. EE. 6 □ I can explain that an equation in the form of $y=mx$ will represent the graph of a proportional relationship with the slop of *m* and the y intercept of 0.

8. EE. 6 □ I can explain that an equation in the form of $y=mx+b$ represents the graph of a linear relationship with a slope of *m* and a y intercept of *b*.

I can analyze and solve linear equations and pairs of simultaneous linear equations.

8. EE. 7 □ I can solve linear equations in one variable.

8. EE. 7. a □ I can give examples of linear equations with one solution, infinitely many solutions, or no solutions.

8. EE. 7. b □ I can solve single-variable equations or inequalities using rational number coefficients.

8. EE. 7. c □ I can solve single-variable absolute value equations.

8. EE. 8 □ I can analyze and solve pairs of simultaneous linear equations.

8. EE. 8.a □ I can understand two linear equation solutions using two variables can correspond to points of intersection on their graphs.

8. EE. 8.b □ I can solve two linear equations using two variables graphically and approximate when the solutions are not integers.

8. EE. 8. c □ I can solve problems that lead to two linear equations in two variables graphically.

Functions

8th Grade—"I Can Do Math"

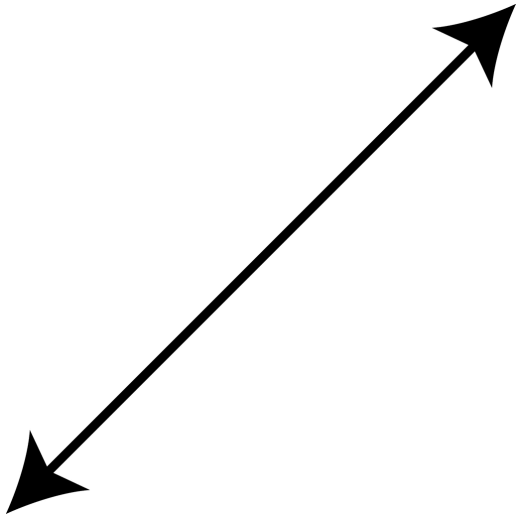
I can define, evaluate, and compare functions.

8.F. 1 □ I can define a function as a rule, where for each input there is exactly one output.

8.F. 1 □ I can show the relationship between inputs and outputs of a function by graphing them as ordered pairs on a coordinate grid.

8.F 2 □ I can determine the properties of function given the inputs and outputs in a table.

8.F 2 □ I can compare the properties of two functions that are represented differently (as equations, tables, graphs, or given verbally).



8.F. 3 □ I can explain why the equation $y=mx+b$ represents a linear function and then find the slope and y intercept in relation to the function.

8.F 3 I can give examples of relationships and create a table of values that can be defined as a non-linear function.

I can use functions to model relationships between quantities.

8.F. 4 □ I can create a function to model a linear relationship between two quantities.

8.F. 4 □ I can determine the rate of change and initial value of the function from decryption of the relationship of two values (x,y) including reading a table or graph.

8.F.4 □ I can find the rate of change and initial value of a linear function in terms of the situation it models and in terms of its graph or a table of values.

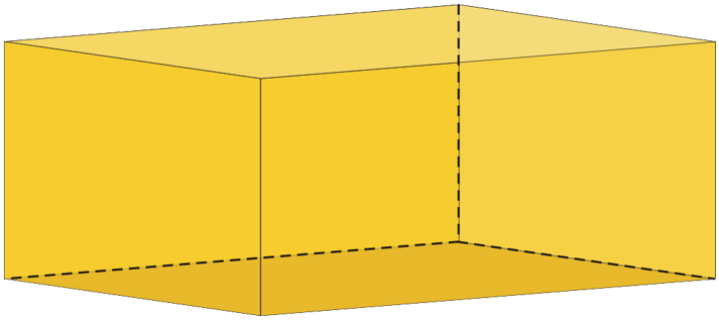
8.F.5 □ I can match the graph of a function to a given situation.

8.F.5 □ I can sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Geometry

8th Grade—"I Can Do Math"

I can understand congruence and similarity using physical models, transparencies, or geometry software.



8.G. 1 □ I can verify by measuring and comparing the properties of rotated, reflected, or translated geometric figures.

8.G.1. a □ I can verify that corresponding lines and line segments remain the same length.

8.G.1. b □ I can verify that corresponding angles have the same measure.

8.G.1. c □ I can verify that corresponding parallel lines remain parallel.

8.G. 2 □ I can explain that a two-dimensional figure is congruent to another if the second figure can be made from the first by rotations, reflections, and translations.

8.G. 2 □ I can describe a sequence of transformations that shows the congruence between two figures.

8.G. 3 □ I can describe the changes to the x and y coordinates of a figure after either dilation, translation, rotation, or reflection.

8.G. 4 □ I can explain how transformation can be used to prove that two figures are similar.

8.G. 4 □ I can describe a sequence of transformations that either prove or disprove that two figures are similar.

8.G. 5 □ I can informally prove that the sum of any triangle's interior angles will be the same measure as a straight angle (180 degrees).

8.G. 5 □ I can informally prove that the sum of any polygon's exterior angles will be 360 degrees.

8.G. 5 □ I can estimate the relationships and measurements of the angles created when two parallel lines are cut by a transversal.

Geometry

8th Grade—"I Can Do Math"

I can understand and apply the Pythagorean Theorem.

8.G. 6 □ I can use the Pythagorean Theorem to determine if a given triangle is a right triangle.

8.G. 6 □ I can use algebraic reasoning to relate a visual model to the Pythagorean Theorem.

8.G. 7 □ I can draw a diagram and use the Pythagorean Theorem to solve real world problems involving right triangles.

8.G. 7 □ I can draw a diagram to find right triangles in a three-dimensional figure and use the Pythagorean Theorem to calculate various dimensions.

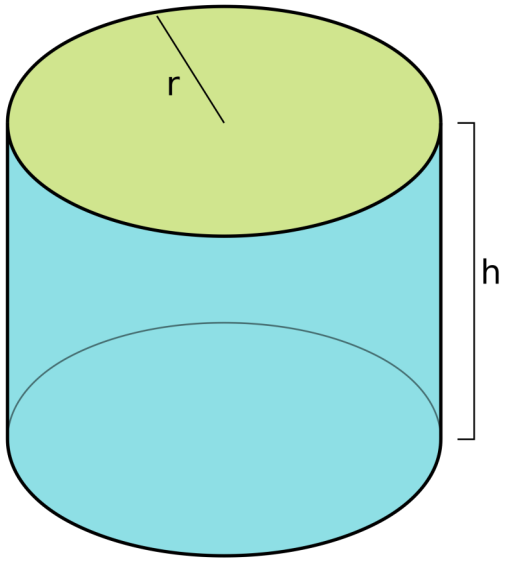
8.G. 7 □ I can apply the Pythagorean Theorem to find an unknown side length of a right triangle.

8.G. 8 □ I can apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

I can use my knowledge of different volumes of shapes to solve real-world problems.

8.G. 9 □ I can state and apply the formulas for the volumes of cones, cylinders, and spheres.

8.G. 9 □ I can solve real world problems involving the volumes of cones, cylinders, and spheres.



Statistics & Probability

8th Grade—"I Can Do Math"

I can investigate patterns of association in bivariate data.

8.SP. 1 □ I can plot ordered pairs on a coordinate grid representing the relationship between two data sets.
8.SP. 1 □ I can describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
8.SP. 2 □ I can recognize if the data plotted on a scatter plot has a linear association.
8.SP. 2 □ I can draw a straight line to approximate the linear relationship between the plotted points of two data sets.
8.SP. 3 □ I can determine the equation of a trend line that approximates the linear relationships between the plotted points of two data sets.
8.SP. 3 □ I can interpret the y intercept and slope of an equation based on collected data.
8.SP. 3 □ I can use the equation of a trend line to summarize the given data and make predictions about additional data points.
8.SP. 4 □ I can create and explain a two-way table to record the frequencies of bivariate categorical values.
8.SP. 4 □ I can determine the relative frequencies for rows and/or columns on a two-way table.
8.SP. 4 □ I can use relative frequencies and the context of a problem to describe possible associations between two sets of data.