

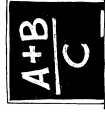
Grade 8

Standard

CC.8.EE.2

Math

Expressions &
Equations



EE 2

Work with radicals and integer exponents.

Work with radicals and integer exponents. Use square root 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. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational

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Grade 8

Standard

CC.8.EE.1

Math

Expressions &
Equations



EE 1

Work with radicals and integer exponents.

Work with radicals and integer exponents. Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^4(-5) = 3^6(-5) = 1/(3^6) = 1/27$

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Grade 8

Standard

CC.8.EE.4

Math

Expressions &
Equations



EE 4

Work with radicals and integer exponents.

Work with radicals and integer exponents. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology

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Standard

CC.8.EE.3

Math

Expressions &
Equations



EE 3

Work with radicals and integer exponents.

Work with radicals and integer exponents. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9 , and determine that the world population is more than 20 times larger

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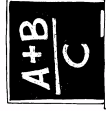
Standard

CC.8.EE.6

Math

Expressions & Equations

EE 6



Understand the connections between proportional relationships, lines, and linear equations.

Understand the connections between proportional relationships, lines, and linear equations. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx + b$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b

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Grade 8

Standard

CC.8.EE.5

Math

Expressions & Equations

EE 5



Understand the connections between proportional relationships, lines, and linear equations.

Understand the connections between proportional relationships, lines, and linear equations. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed

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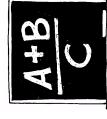
Standard

CC.8.EE.7a

Math

Expressions & Equations

EE 7a



Analyze and solve linear equations and pairs of simultaneous linear equations.

Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers)

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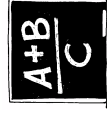
Standard

CC.8.EE.7

Math

Expressions & Equations

EE 7



Analyze and solve linear equations and pairs of simultaneous linear equations.

Analyze and solve linear equations and pairs of simultaneous linear equations. Solve linear equations in one variable

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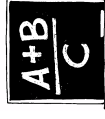
Grade 8

Standard

CC.8.EE.8

Math

Expressions &
Equations



EE 8

Analyze and solve linear equations and pairs of simultaneous linear equations.

Analyze and solve linear equations and pairs of simultaneous linear equations. Analyze and solve pairs of simultaneous linear equations

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Grade 8

Standard

CC.8.EE.7b

Math

Expressions &
Equations



EE 7b

Analyze and solve linear equations and pairs of simultaneous linear equations.

Solve linear equations with rational number coefficients, including equations whose solutions require expanding like expressions using the distributive property and collecting like terms

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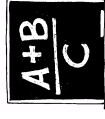
Grade 8

Standard

CC.8.EE.8b

Math

Expressions &
Equations



EE 8b

Analyze and solve linear equations and pairs of simultaneous linear equations.

Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6

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Grade 8

Standard

CC.8.EE.8a

Math

Expressions &
Equations



EE 8a

Analyze and solve linear equations and pairs of simultaneous linear equations.

Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously

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Grade 8

Standard

CC.8.F.1

Math

Functions

F

1

Define, evaluate, and compare functions.

Define, evaluate, and compare functions. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in Grade 8)

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Grade 8

Standard

CC.8.F.3

Math

Functions

F

3

Define, evaluate, and compare functions.

Define, evaluate, and compare functions. Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line

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Grade 8

Standard

CC.8.EE.8c

Math

Expressions & Equations

EE

8c

Analyze and solve linear equations and pairs of simultaneous linear equations.

Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair

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Grade 8

Standard

CC.8.F.2

Math

Functions

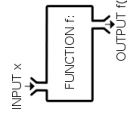
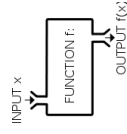
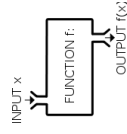
F

2

Define, evaluate, and compare functions.

Define, evaluate, and compare functions. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change

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Grade 8

Standard

CC.8.F.5

Math

Functions

F

5

Use functions to model relationships between quantities.

Use functions to model relationships between quantities. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally

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Grade 8

Standard

CC.8.F.4

Math

Functions

F

4

Use functions to model relationships between quantities.

Use functions to model relationships between quantities. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret 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

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Grade 8

Standard

CC.8.G.2

Math

Geometry

G

2

Understand congruence and similarity using physical models, transparencies, or geometry software.

Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them

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Grade 8

Standard

CC.8.G.1

Math

Geometry

G

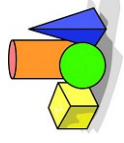
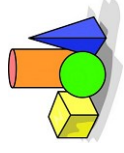
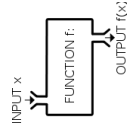
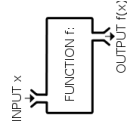
1

Understand congruence and similarity using physical models, transparencies, or geometry software.

Understand congruence and similarity using physical models, transparencies, or geometry software. Verify experimentally the properties of rotations, reflections, and translations:

- a. Lines are taken to lines, and line segments to line segments of the same length.
- b. Angles are taken to angles of the same measure.
- c. Parallel lines are taken to parallel lines

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Grade 8

Standard

CC.8.G.4

Math

Geometry

G

4

Understand congruence and similarity using physical models, transparencies, or geometry software.

Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them

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Grade 8

Standard

CC.8.G.3

Math

Geometry

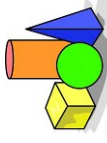
G

3

Understand congruence and similarity using physical models, transparencies, or geometry software.

Understand congruence and similarity using physical models, transparencies, or geometry software. Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates

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Grade 8

Standard

CC.8.G.6

Math

Geometry

G

6

Understand and apply the Pythagorean Theorem.

Understand and apply the Pythagorean Theorem. Explain a proof of the Pythagorean Theorem and its converse

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Grade 8

Standard

CC.8.G.5

Math

Geometry

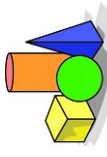
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5

Understand congruence and similarity using physical models, transparencies, or geometry software.

Understand congruence and similarity using physical models, transparencies, or geometry software. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the three angles appear to form a line, and give an argument in terms of transversals why this is so

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Grade 8

Standard

CC.8.G.8

Math

Geometry

G 8

Understand and apply the Pythagorean Theorem.

Understand and apply the Pythagorean Theorem. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system

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Grade 8

Standard

CC.8.G.7

Math

Geometry

G 7

Understand and apply the Pythagorean Theorem.

Understand and apply the Pythagorean Theorem. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions

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Grade 8

Standard

CC.8.NS.1.

Math

Number System

NS 1

Know that there are numbers that are not rational, and approximate them by rational numbers.

Understand informally that every number has a decimal expansion; the rational numbers are those with decimal expansions that terminate in 0's or eventually repeat. Know that other numbers are called irrational

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Grade 8

Standard

CC.8.G.9

Math

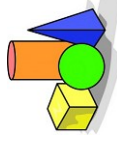
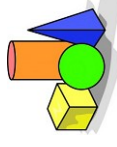
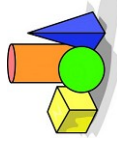
Geometry

G 9

Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.

Solve real-world and mathematical problems involving volume of cylinders, cones and spheres. Know the formulas for the volume of cones, cylinders, and spheres and use them to solve real-world and mathematical problems

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Grade 8

Standard

CC.8.SP.1

Math

Statistics & Probability SP 1



Investigate patterns of association in bivariate data.

Investigate patterns of association in bivariate data. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities.

Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association

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Grade 8

Standard

CC.8.NS.2

Math

Number System NS 2



Know that there are numbers that are not rational, and approximate them by rational numbers.

Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations

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Grade 8

Standard

CC.8.SP.3

Math

Statistics & Probability SP 3



Investigate patterns of association in bivariate data.

Investigate patterns of association in bivariate data. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height

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Grade 8

Standard

CC.8.SP.2

Math

Statistics & Probability SP 2



Investigate patterns of association in bivariate data.

Investigate patterns of association in bivariate data. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line

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Investigate patterns of association in bivariate data.

Investigate patterns of association in bivariate data. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at