

# Grade 8

**The Number System:** Know that there are numbers that are not rational, and approximate them by rational numbers. [8.NS.A](#)

- 1 Calculate or identify the equivalent decimal values for common fractions less than 1, such as those expressed as halves, thirds, fourths, and fifths.** [8.NS.A.1](#)
- 2 Compare the size of rational numbers by locating them approximately on a number line diagram.** [8.NS.A.2](#)

**Expressions & Equations: Work with radicals and integer exponents.** [8.EE.A](#)

- 1 Know that an integer exponent of 2 is called “squared” and an integer exponent of 3 is called “cubed” and that these numbers indicate how many times to use a number as a factor.** [8.EE.A.1](#)
  - a** For example,  $4^2$  means 4 times 4 and  $4^3$  means 4 times 4 times 4. [8.EE.A.1.A](#)
- 2 Evaluate square roots of small perfect squares (up to 100).** [8.EE.A.2](#)
- 3 Use numbers expressed in the form a single digit times a 2nd or 3rd power of 10 to estimate large quantities.** [8.EE.A.3](#)
  - a** For example, 5000 can be expressed as  $5 \times 10^3$ . [8.EE.A.3.A](#)
- 4 Perform addition with numbers expressed in scientific notation, including problems where whole numbers are used as a factor times  $10^2$  and  $10^3$ .** [8.EE.A.4](#)
  - a** For example,  $5 \times 10^2$  plus  $3 \times 10^2$  is  $8 \times 10^2$  (five ten-squared plus three ten-squared is 8 ten-squared). [8.EE.A.4.A](#)

**Expressions & Equations: Understand the connections between proportional relationships, lines, and linear equations.** [8.EE.B](#)

- 5 Graph simple proportional relationships by connecting the origin to a point representing the ratio in the form  $y/x$ .** [8.EE.B.5](#)
  - a** For example, given a ratio of 3 miles per 1 hour, plot the point (1,3) and draw a line through it and the origin in the first quadrant. [8.EE.B.5.A](#)
- 6 Measure the slope of a graph by drawing or using given slope triangles.** [8.EE.B.6](#)

**Expressions & Equations: Analyze and solve linear equations and pairs of simultaneous linear equations.** [8.EE.C](#)

- 7 Solve two-step linear equations in one variable.** [8.EE.C.7](#)
  - a** For example, if  $6x - 3 = 9$ , then  $x = 2$ . [8.EE.C.7.A](#)
- 8 Match a pair of simultaneous linear equations to a real-world context.** [8.EE.C.8](#)

**Functions: Define, evaluate, and compare functions.** 8.F.A

- 1** Given a function table containing at least 2 ordered pairs, identify a missing number that completes another ordered pair (limited to linear functions). (EE.F.1-3) 8.F.A.1

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- 2** Compare properties of two functions each represented by verbal descriptions. 8.F.A.2
  - a For example, compare the amount of money received if your allowance of \$10 per week instead of \$6 per week. 8.F.A.2.A

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- 3** Interpret a function as linear if all of the input/output pairs can be graphed on a single line. 8.F.A.3

**Functions: Use functions to model relationships between quantities.** 8.F.B

- 4** Determine the values or rule of a function using a graph or a table. 8.F.B.4

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- 5** Describe qualitatively how a graph represents a relationship between two quantities (EE.8.F.B.5). 8.F.B.5

**Statistics & Probability: Investigate patterns of association in bivariate data.** 8.SP.A

- 1** Interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. 8.SP.A.1
  - a Describe patterns such as positive or negative association and linear association. 8.SP.A.1.A

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- 2** Informally fit a straight line to a scatterplot and assess the model fit by judging the closeness of the data points to the graph of the line. 8.SP.A.2

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- 3** Use a graph of linear model in the context of bivariate measurement data to interpret the slope and intercept (EE.8.SP.4). 8.SP.A.3

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- 4** Construct a graph or table from given categorical data and compare the data categorized in the graph or table. 8.SP.A.4

**Geometry: Understand congruence and similarity using physical models, transparencies, or geometry software.** 8.G.A

- 1** Recognize rotations, reflections, and translations (EE.8.G.1). 8.G.A.1

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- 2** Demonstrate congruence of two-dimensional shapes by rotating, reflecting, and/or translating one shape onto another. 8.G.A.2

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- 3** Describe the effect of a translation, rotation, or reflection in the coordinate plane by matching a point on the figure with the corresponding point on the image of the figure. 8.G.A.3

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- 4** Recognize 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. 8.G.A.4

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- 5** Use angle measurements to establish facts about the angle sum of triangles and about the angles created when parallel lines are cut by a transversal 8.G.A.5

**Geometry: Understand and apply the Pythagorean Theorem.** 8.G.B

**6 Explain or otherwise demonstrate how the areas of the squares constructed on the sides of a 3-4-5 right triangle correspond to the parts of the formula for the Pythagorean Theorem.** 8.G.B.6

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**7 Represent a right triangle on a coordinate plan and measure to find missing side lengths.** 8.G.B.7

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**8 Measure to find the distance between two points on a coordinate plane.** 8.G.B.8

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**Geometry: Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.** 8.G.C

**9 Use the formulas for the volumes of cylinders to solve real-world and mathematical problems.** 8.G.C.9