Colorado Extended Evidence Outcomes: Mathematics

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, 42 means 4 times 4 and 43 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 x 103 . 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 102 and 103 .** 8.EE.A.4

- a For example, 5 x 102 plus 3 x 102 is 8 x 102 (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 ration 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 eq

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 simultaneious linear equations to a real-world context.** 8.EE.C.8

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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
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
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
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
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
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
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
2. **Demonstrate congruence of two-dimensional shapes by rotating, reflecting, and/or translating one shape onto another.** 8.G.A.2
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 future.** 8.G.A.3
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
5. **Use angle measurements to establish facts about the angle sum of triangles and bout the angles created when parallel lines are cut by a transversal** 8.G.A.5

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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
	7 **Represent a right triangle on a coordinate plan and measure to find missing side lengths.** 8.G.B.7
	8 **Measure to find the distance between two points on a coordinate plane.** 8.G.B.8
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