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| Work with radicals and integer exponents. | |
| **8.EE.1** Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example, 32×3–5 = 3–3 = 1/33 = 1/27.* | **8.EE.1** I know and can apply the properties of integer exponents to generate equivalent numerical expressions.  **For example**: 32×3–5 = 3–3 = 1/33 = 1/27. |
| **8.EE.2** 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 √2 is irrational. | **8.EE.2.a** 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.  **For example**: if then, or if , then  **8.EE.2.b**  I can evaluate perfect square roots and perfect cube roots. |
| **8.EE.3** 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 3×108 and the population of the world as 7×109, and determine that the world population is more than 20 times larger.* | **8.EE.3.a**  I can use scientific notation to write very large and very small numbers.  **8.EE.3.b**  I can compare numbers in scientific notation and express how many times bigger, or smaller, one number is than the other.  **For example:** estimate the population of the United States as 3×108 and the population of the world as 7×109, and determine that the world population is more than 20 times larger.  **Note:** This is the first time the students will be introduced to the formal definition of scientific notation. |
| **8.EE.4** 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. | **8.EE.4.a**  I can use operations with numbers in both decimal and scientific notation.  **8.EE.4.b** I can use scientific notation and choose units of appropriate size for measurements of very large or very small quantities.  **For example**: use millimeters per year for seafloor spreading.  **8.EE.4.c** I can use scientific notation to interpret data that has been generated by technology. |

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| Understand the connections between proportional relationships, lines, and linear equations | |
| **8.EE.5** 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.* | **8.EE.5.a**  I can graph proportional relationships interpreting the unit rate as the slope of the graph.  **8.EE.5.b**  I can 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 |
| **8.EE.6** 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* for a line through the origin and the equation *y* = *mx* + *b* for a line intercepting the vertical axis at *b*. | **8.EE.6.a** I can use similar triangles to explain why the slope *m* is the samebetween any two points on a line (non-vertical).  **8.EE.6.b** I can write the equation of a line in the form *y = mx + b* given its graph. I understand the connection between the *y*-intercept and the value of *b*. |

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| Analyze and solve linear equations and pairs of simultaneous linear equations. | |
| **8.EE.7** Solve linear equations in one variable.   1. 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). 2. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. | **8.EE.7.a**  I can solve linear equations in one variable, where there is exactly one solution, infinitely many solutions or no solutions.  **8.EE.7.b** I can solve linear equations with rational number coefficients including those whose solutions require expanding expressions, using the distributive property, and combining like terms.  **For example :** |
| **8.EE.8** Analyze and solve pairs of simultaneous linear equations.   1. 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. 2. 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.*   c. 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.* | **8.EE.8.a.1** I understand that the solution to a system of two linear equations in two variables corresponds to the point of intersection on a graph and that the solution must satisfy both equations.  **8.EE.8.a.2** I understand that a system of two linear equations in two variables can have one solution, infinitely many solutions, or no solutions.  **8.EE.8.b.1** I can solve systems of two linear equations algebraically and estimate solutions by graphing the equations.  **8.EE.8.b.2** I can recognize how many solutions a linear system has by recognizing similarities or differences in the equations.  **For example:** 3*x* + 2*y* = 5 and 3*x* + 2*y* = 6 have no solution because 3*x* + 2*y* cannot simultaneously  be 5 and 6.  **8.EE.8.c** I can solve contextual problems involving systems of two linear equations given a table, a graph, or equations. |