

Strand	Algebra	No.	Benchmark	Assessments – In progressive manner
Algebra	Represent real-world and mathematical situations using equations and inequalities involving linear expressions. Solve equations and inequalities symbolically and graphically. Interpret solutions in the original context.	8.2.4.2	Solve multi-step equations in one variable. Solve for one variable in a multi-variable equation in terms of the other variables. Justify the steps by identifying the properties of equalities used.	<ul style="list-style-type: none"> • Demonstrate how to isolate the variable by adding or subtracting with one step. Example: $x + 7 = 10$ • Demonstrate how to isolate the variable by multiplying or dividing with one step. Example: $7x = 140$ • Demonstrate how to isolate the variable by adding, subtracting, multiplying or dividing with two steps. Example: $3x + 28 = 10$ • Demonstrate how to isolate the variable by adding, subtracting, multiplying or dividing, including distributing one time. Example: $5(x - 8) = 55$ • Demonstrate how to isolate the variable by adding, subtracting, multiplying or dividing, including distributing more than one time. Example: $5(x - 8) + 3(x + 2) = 71$ • Demonstrate how to isolate the variable by adding, subtracting, multiplying or dividing, including distributing more than one time and combining like terms. Example: $3 - 5(x - 8) + 3(x + 2) + 9x - 1 = 71$ • Demonstrate how to isolate the variable by adding, subtracting, multiplying or dividing, including distributing more than one time and combining like terms given variables on both sides. Example: $3 - 5(x - 8) + 3(x + 2) + 9x - 1 = 71 - 5(-2x + 8) + 9$ • Solve any equation in a multi-variable set using SADMEP. Example: $y = m^2 + bh \rightarrow$ solve for “m”.
Algebra	Represent real-world and mathematical situations using equations and inequalities involving linear expressions. Solve equations and inequalities symbolically and graphically. Interpret solutions in the original context.	8.2.4.3	Express linear equations in slope-intercept, point-slope and standard forms, and convert between these forms. Given sufficient information, find an equation of a line.	<ul style="list-style-type: none"> • Determine the slope of a line using “rise over run” given a graph of said line. • Apply the formula $(y_2 - y_1)/(x_2 - x_1) = m$ to determine the slope of a line. • Create an equation of the line given a slope and a y-intercept using the formula $y = mx + b$ • Determine the equation of a line given 2 points using the formula $y = mx + b$ • Determine the equation of a line given 1 point and the slope using the formula $y = mx + b$ • Determine the equation of a line given 1 point and the slope using the formula $y_2 - y_1 = m(x_2 - x_1)$ • Convert between the formulas $y = mx + b$, $y_2 - y_1 = m(x_2 - x_1)$, and $Ax + By = C$ in any situation

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Algebra	Represent real-world and mathematical situations using equations and inequalities involving linear expressions. Solve equations and inequalities symbolically and graphically. Interpret solutions in the original context.	8.2.4.4	Use linear inequalities to represent relationships in various contexts.	<ul style="list-style-type: none"> • Create linear inequalities that represent real world situations. Example: $y \leq 0.54x + 7$ • Solve a situation using inequalities. Example: A gas station charges \$0.10 less per gallon of gasoline if a customer also gets a car wash. Without the car wash, gas costs \$2.79 per gallon. The car wash is \$8.95. What are the possible amounts (in gallons) of gasoline that you can buy if you also get a car wash and can spend at most \$35?
Algebra	Represent real-world and mathematical situations using equations and inequalities involving linear expressions. Solve equations and inequalities symbolically and graphically. Interpret solutions in the original context.	8.2.4.5	Solve linear inequalities using properties of inequalities. Graph the solutions on a number line. <i>For example:</i> The inequality $-3x < 6$ is equivalent to $x > -2$, which can be represented on the number line by shading in the interval to the right of -2.	<ul style="list-style-type: none"> • Determine the relationship between inequalities and their solutions mathematically as well as graphing the inequality on a number line. Example: The inequality $-3x < 6$ is equivalent to $x > -2$, which can be represented on the number line by shading in the interval to the right of -2.
Algebra	Represent real-world and mathematical situations using equations and inequalities involving linear expressions. Solve equations and inequalities symbolically and graphically. Interpret solutions in the original context.	8.2.4.6	Represent relationships in various contexts with equations and inequalities involving the absolute value of a linear expression. Solve such equations and inequalities and graph the solutions on a number line.	<ul style="list-style-type: none"> • Understand and model a situation with ranges featuring an inequality. Example: A cylindrical machine part is manufactured with a radius of 2.1 cm, with a tolerance of $\frac{1}{100}$ cm. The radius r satisfies the inequality $r - 2.1 \leq .01$. • Demonstrate how a compound inequality can be shown on a number line. Example: Graph the compound inequality $r - 2.1 \leq .01$. • Solve absolute value inequalities with the understanding that there can be 0, 1, 2 or infinite solutions to any given absolute inequality problem. • Demonstrate graphically all possible solutions to any given absolute inequality problem.