Name _____ Date_____

Lesson 1: Writing Equations Using Symbols

Exit Ticket

Write each of the following statements using symbolic language.

1. When you square five times a number, you get three more than the number.

2. Monica had some cookies. She gave seven to her sister. Then, she divided the remainder into two halves, and she still had five cookies left.

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Lesson 2: Linear and Nonlinear Expressions in x

Exit Ticket

Write each of the following statements as a mathematical expression. State whether the expression is a linear or nonlinear expression in x.

1. Seven subtracted from five times a number, and then the difference added to nine times a number

2. Three times a number subtracted from the product of fifteen and the reciprocal of a number

3. Half of the sum of two and a number multiplied by itself three times

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Lesson 3: Linear Equations in x

Exit Ticket

1. Is 8 a solution to $\frac{1}{2}x + 9 = 13$? Explain.

2. Write three different equations that have $x = 5$ as a solution.

3. Is -3 a solution to the equation $3x - 5 = 4 + 2x$? Explain.

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Lesson 4: Solving a Linear Equation

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1. Guess a number for x that would make the equation true. Check your solution.

$$5x - 2 = 8$$

2. Use the properties of equality to solve the equation $7x - 4 + x = 12$. State which property justifies your first step and why you chose it. Check your solution.

3. Use the properties of equality to solve the equation $3x + 2 - x = 11x + 9$. State which property justifies your first step and why you chose it. Check your solution.

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Lesson 5: Writing and Solving Linear Equations

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For each of the following problems, write an equation and solve.

1. Given a right triangle, find the measures of all the angles, in degrees, if one angle is a right angle and the measure of the second angle is six less than seven times the measure of the third angle.

2. In a triangle, the measure of the first angle is six times a number. The measure of the second angle is nine less than the first angle. The measure of the third angle is three times the number more than the measure of the first angle. Determine the measure of each angle in degrees.

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Lesson 6: Solutions of a Linear Equation

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Transform the equation if necessary, and then solve to find the value of x that makes the equation true.

1. $5x - (x + 3) = \frac{1}{3}(9x + 18) - 5$

2. $5(3x + 9) - 2x = 15x - 2(x - 5)$

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Lesson 7: Classification of Solutions

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Give a brief explanation as to what kind of solution(s) you expect the following linear equations to have. Transform the equations into a simpler form if necessary.

1. $3(6x + 8) = 24 + 18x$

2. $12(x + 8) = 11x - 5$

3. $5x - 8 = 11 - 7x + 12x$

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Lesson 8: Linear Equations in Disguise

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Solve the following equations for x.

1. $\frac{5x-8}{3} = \frac{11x-9}{5}$

2. $\frac{x+11}{7} = \frac{2x+1}{-8}$

3. $\frac{-x-2}{-4} = \frac{3x+6}{2}$

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Lesson 9: An Application of Linear Equations

Exit Ticket

1. Rewrite the equation that would represent the sum in the fifth step of the Facebook problem:

$$S_5 = 7 + 7 \cdot 5 + 7 \cdot 5^2 + 7 \cdot 5^3 + 7 \cdot 5^4.$$

2. The sum of four consecutive integers is 74. Write an equation, and solve to find the numbers.