## Eureka Math™ Exit Ticket Packet 1 Topics A–B

Grade 8 Module 4

#### **Topic A**

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#### Topic B

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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



Lesson 3 8•4

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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.



Lesson 4 8•4

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#### Lesson 4: Solving a Linear Equation

**Exit Ticket** 

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

**Exit Ticket** 

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.

 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.



Lesson 6 8•4

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## Lesson 6: Solutions of a Linear Equation

**Exit Ticket** 

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)



Lesson 7 8•4

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#### **Lesson 7: Classification of Solutions**

**Exit Ticket** 

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

**Exit Ticket** 

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.



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## Lesson 10: A Critical Look at Proportional Relationships

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**Exit Ticket** 

Alex skateboards at a constant speed from his house to school 3.8 miles away. It takes him 18 minutes.

a. What fraction represents his constant speed, C?

b. After school, Alex skateboards at the same constant speed to his friend's house. It takes him 10 minutes. Write the fraction that represents constant speed, *C*, if he travels a distance of *y*.

c. Write the fractions from parts (a) and (b) as a proportion, and solve to find out how many miles Alex's friend's house is from school. Round your answer to the tenths place.



Lesson 11 8•4

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#### Lesson 11: Constant Rate

**Exit Ticket** 

Vicky reads at a constant rate. She can read 5 pages in 9 minutes. We want to know how many pages, p, Vicky can read after t minutes.

a. Write a linear equation in two variables that represents the number of pages Vicky reads in any given time interval.

<i>t</i> (time in minutes)	Linear Equation:	p (pages read)
0		
20		
40		
60		

b. Complete the table below. Use a calculator, and round answers to the tenths place.

c. About how long would it take Vicky to read 25 pages? Explain.



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#### **Lesson 12: Linear Equations in Two Variables**

#### **Exit Ticket**

1. Is the point (1, 3) a solution to the linear equation 5x - 9y = 32? Explain.

2. Find three solutions for the linear equation 4x - 3y = 1, and plot the solutions as points on a coordinate plane.

x	Linear Equation: 4x - 3y = 1	у	-								<u> </u>	<u> </u>	-			
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### Lesson 13: The Graph of a Linear Equation in Two Variables

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**Exit Ticket** 

1. Ethan found solutions to the linear equation 3x - y = 8 and graphed them. What shape is the graph of the linear equation taking?



2. Could the following points be on the graph of -x + 2y = 5?





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# Lesson 14: The Graph of a Linear Equation—Horizontal and Vertical Lines

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**Exit Ticket** 

1. Graph the linear equation ax + by = c, where a = 0, b = 1, and c = 1.5.





3. What linear equation represents the graph of the line that coincides with the *x*-axis?

4. What linear equation represents the graph of the line that coincides with the *y*-axis?

