

FPC 10

6.1 – Writing Systems of Linear Equations

1. a) Two integers have a sum of 8. The difference between three times the first integer and twice the second integer is 14. Create a system of linear equations to model this problem.

b) Which of the following pairs of integers could be the solution to this problem?

- i) 10 and -8 ii) 8 and 5 iii) 6 and 2

2. a) The stage at the Surrey Bell Arts Center, is rectangular. Its perimeter is 158 ft. and the width of the stage is 31 ft. less than the length. Create a system of linear equations that can be used to model this situation.

b) Carol has determined that the stage is 55 ft. long and 24 ft. wide. Use the linear system from part (a) to verify that Carol is correct.

3. a) Create a linear system to model the following problem:

A school raised \$140 by collecting 2000 cans and glass bottles for recycling. The school received 5¢ for each can and 10¢ for each bottle.

b) The school collected 1200 cans and 800 bottles. Use the linear system to check if this possible.

4. A bicycle has 2 wheels and a tricycle has 3 wheels. Create a mathematical problem about wheels that can be modeled by the linear system below and explain the meaning of each variable.

$$2b + 3t = 100$$

$$b + t = 40$$

5. The following linear system models the cost of tickets for a group of adults and children attending a play. Describe the problem that is being represented by the system.

$$25a + 10c = 1500$$

$$c - a = 10$$

6. Describe a problem that can be modeled by the following Linear System. Make sure to explain what each variable represents.

$$2m + 3n = 20$$

$$m - n = 5$$

7. Re-write the following system as a linear system:

$$\frac{3x - 2}{x - y} = -10$$

$$\frac{x}{3} + \frac{y}{2} = x + y$$