Systems of Equations – Elimination

Bell Work:

1. **Solve the system of equations. Show all work.**

$$y = \frac{3}{4}x + 5$$

$$2x + 3y = -19$$

2. **What is the vertex of the absolute value function with an equation below.** $f(x) = 2|x + 5| - 6$

3. **What is the slope of the line with an equation of** $6x + 5y = -25$**?**

4. **What is the domain of the linear parent function?**

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1. **Larry, a carpenter, bought 4 boxes of nails and 3 boxes of screws, spending $24. Later, he needed 2 more boxes of nails and 2 more boxes of screws, spending $14. How much did each box of nails and box of screws cost?**

Identify the variables.

Nails: *x*

Screws: *y*

Set up the equations.

$$4x + 3y = 24$$

$$(-2)\ 2x + 2y = 14$$

Solve by eliminating one of the variables.

$$4x + 3y = 24$$

$$+\ -4x - 4y = -28$$

$$-y = -4$$

$$y = 4$$

Substitute this into one of the equations to solve for y.

$$2x + 8 = 14$$

$$2x = 6$$

$$x = 3$$

Answer the question with a complete sentence.

A box of nails cost $3 and box of screws cost $4.

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2. **Amanda scored 21 points in the last basketball game on 9 baskets. Some were 2-point baskets and the rest were 3-point baskets. How many of each did she make?**

Identify the variables.

2-point basket: *x*

3-point basket: *y*

Set up the equations.

$$(-2)\quad x + y = 9$$

$$2x + 3y = 21$$

Solve by eliminating one of the variables.

$$-2x - 2y = -18$$

$$+\quad 2x + 3y = 21$$

$$y = 3$$

Substitute this into one of the equations to solve for y.

$$x + 3 = 9$$

$$x = 6$$

Answer the question with a complete sentence.

Amanda scored 6 2-point baskets and 3 3-point baskets.

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3. **Jerry sells 2 types of soccer balls at his sporting goods store. One type costs $25.00 and the other type costs $32.00. Last month he sold 32 soccer balls, making $877.00. How many of each type did he sell?**

Identify the variables.

$25 ball: *x*

$32 ball: *y*

Set up the equations.

$$(-25)\ x + y = 32$$

$$25x + 32y = 877$$

Solve by eliminating one of the variables.

$$-25x - 25y = -800$$

$$+\ 25x + 32y = 877$$

$$7y = 77$$

$$y = 11$$

Substitute this into one of the equations to solve for y.

$$x + 11 = 32$$

$$x = 21$$

Answer the question with a complete sentence.

Jerry sold 21 $25 soccer balls and 11 $32 soccer balls.

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4. **Carrie bought 12 bottles of drinks paying $44.00 for a party she will be having. Some of the bottles were pop, which cost her $3.00 a bottle, and the rest were bottles of juice, which cost $5.00 a bottle. How many of each did she buy for her party?**

Identify the variables.

Pop: *x*

Juice: *y*

Set up the equations.

$$(-3) \quad x + y = 12$$

$$3x + 5y = 44$$

Solve by eliminating one of the variables.

$$-3x - 3y = -36$$

$$+ \quad 3x + 5y = 44$$

$$2y = 8$$

$$y = 4$$

Substitute this into one of the equations to solve for y.

$$x + 4 = 12$$

$$x = 8$$

Answer the question with a complete sentence.

Carrie bought 8 bottles of pop and 4 bottles of juice.

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Assignment:

FLUENCY PRACTICE: Elimination Word Problems A Worksheet