Systems of Equations – Elimination

Bell Work:

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

$$4x - y = 44$$

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

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

3. **What is the one point on the line with an equation of** $5x - 3y = 25$**?**

4. **What is the range of the constant parent function?**

Systems of Equations – Elimination

Find the solution.

1. $(2)\ \ 4x - 7y = 38$

   $(7)\ \ 5x + 2y = 26$

Multiply both equations so that 1 pair of coefficients are the same.

You can either choose to eliminate the x or the y. But it is easier to eliminate the one with the smaller coefficients.

Add to eliminate one variable.

$$8x - 14y = 76$$

$$+\ \ 35x + 14y = 182$$

$$43x = 258$$

$$x = 6$$

Substitute to find the other answer. You have 4 equations to choose from. Choose the easiest one.

$$5(6) + 2y = 26$$

$$30 + 2y = 26$$

$$2y = -4$$

$$y = -2$$

The answer: $(6,\ -2)$

Systems of Equations – Elimination

Find the solution.

2. $(8)\ \ 3x - 8y = 51$

$(-3)\ 8x - 5y = -11$

Multiply both equations so that 1 pair of coefficients are the same.

You can either choose to eliminate the x or the y. But it is easier to eliminate the one with the smaller coefficients.

Add to eliminate one variable.

$$24x - 64y = 408$$

$$+\ \ -24x + 15y = 33$$

$$-49y = 441$$

$$y = -9$$

Substitute to find the other answer. You have 4 equations to choose from. Choose the easiest one.

$$3x - 8(-9) = 51$$

$$3x + 72 = 51$$

$$3x = -21$$

$$x = -7$$

The answer: $(-7,\ -9)$

Systems of Equations – Elimination

Find the solution.

3. $(7)\ \ 9x + 10y = 107$

$(-9)\ 7x - 12y = -75$

Multiply both equations so that 1 pair of coefficients are the same.

You can either choose to eliminate the x or the y. But it is easier to eliminate the one with the smaller coefficients.

Add to eliminate one variable.

$$63x + 70y = 749$$

$$+\ \ -63x + 108y = 675$$

$$178y = 1424$$

$$y = 8$$

Substitute to find the other answer. You have 4 equations to choose from. Choose the easiest one.

$$9x + 10(8) = 107$$

$$9x + 80 = 107$$

$$9x = 27$$

$$x = 3$$

The answer: $(3,\ 8)$

Systems of Equations – Elimination

Find the solution.

4. $(7)\ \ 7x - 2y = -43$

$(2)\ \ 2x + 7y = 18$

Multiply both equations so that 1 pair of coefficients are the same.

You can either choose to eliminate the x or the y. But it is easier to eliminate the one with the smaller coefficients.

Add to eliminate one variable.

$$49x - 14y = -301$$

$$+\ \ 4x + 14y = 36$$

$$53x = -265$$

$$x = -5$$

The answer: $(3,\ 8)$

Substitute to find the other answer. You have 4 equations to choose from. Choose the easiest one.

$$2(-5) + 7y = 18$$

$$-10 + 7y = 18$$

$$7y = 28$$

$$y = 4$$

Systems of Equations – Elimination

Find the solution.

5. $(3)\quad 6x - 5y = 50$

$(5)\quad 5x + 3y = 56$

Multiply both equations so that 1 pair of coefficients are the same.

You can either choose to eliminate the x or the y. But it is easier to eliminate the one with the smaller coefficients.

Add to eliminate one variable.

$$18x - 15y = 150$$
$$+\ \ 25x + 15y = 280$$
$$43x = 430$$
$$x = 10$$

The answer: $(10,\ 2)$

Substitute to find the other answer. You have 4 equations to choose from. Choose the easiest one.

$$5(10) + 3y = 56$$
$$50 + 3y = 56$$
$$3y = 6$$
$$y = 2$$

Systems of Equations – Elimination

Find the solution.

6. $(13)\ 8x + 5y = 7$

$(-5)\ 9x + 13y = 30$

Multiply both equations so that 1 pair of coefficients are the same.

You can either choose to eliminate the x or the y. But it is easier to eliminate the one with the smaller coefficients.

Add to eliminate one variable.

$$104x + 65y = 91$$

$$+\ \ -45x - 65y = -150$$

$$59x = -59$$

$$x = -1$$

Substitute to find the other answer. You have 4 equations to choose from. Choose the easiest one.

$$8(-1) + 5y = 7$$

$$-8 + 5y = 7$$

$$5y = 15$$

$$y = 3$$

The answer: $(-1,\ 3)$

Systems of Equations – Elimination

Assignment:

FLUENCY PRACTICE: Systems of Equations: Elimination C Worksheet