Answer Key

Name: _____
Date: _____

Systems of Equations 02
(alt)

How to find the coordinates of a point where 2 lines meet.

a. **Make both equations look like : '$y = ax + b$'**
b. **Make both equations *equal* to each other**
c. **Solve for '$x$'**
d. **Plug the value of 'x' back into one of the two equations and solve for '$y$'**

II | I
III | IV

1) Solve for 'x'.

**a)** $3x + 4 = 6x - 8$

① $3x - 6x = -8 - 4$

$\frac{-3x}{-3} = \frac{-12}{-3}$

$x = 4$

② $y = 3x + 4$

$y = 3(4) + 4$

$y = 16$

(4, 16)

**b)** $7x + 19 = 3x - 7$

① $7x - 3x = -7 - 19$

$\frac{4x}{4} = \frac{-26}{4}$

$x = -6.5$

② $y = 7x + 19$

$y = 7(-6.5) + 19$

$y = -26.5$

(-6.5, -26.5)

**c)** $-8x + 20 = 2x - 48$

① $-8x - 2x = -48 - 20$

$\frac{-10x}{-10} = \frac{-68}{-10}$

$x = 6.8$

(6.8, -34.4)

② $y = -8x + 20$

$= -8(6.8) + 20$

$y = -34.4$

**d)** $11x + 7 = -15x - 32$

① $11x + 15x = -32 - 7$

$\frac{26x}{26} = \frac{-39}{26}$

$x = -1.5$

② $y = 11x + 7$

$y = 11(-1.5) + 7$

$y = -9.5$

$(-1.5, -9.5)$

~~e)~~

~~f)~~

2) What are the coordinates of the point where the following two lines meet?

Equation 1: **y = 2x + 6**

Equation 2: **y = 6x – 8**

① $2x+6 = 6x-8$

$2x-6x = -8-6$

$\frac{-4x}{-4} = \frac{-14}{-4}$

$x = 3.5$

② $y = 2x+6$

$y = 2(3.5)+6$

$y = 13$

**Answer (** 3.5 , 13 **)**

3) What are the coordinates of the point where the following two lines meet?

Equation 1: **y = 5x + 9**

Equation 2: **y = 3x – 14**

① $5x+9 = 3x-14$

$5x-3x = -14-9$

$\frac{2x}{2} = \frac{-23}{2}$

$x = -11.5$

② $y = 5x+9$

$y = 5(-11.5)+9$

$y = -48.5$

**Answer (** -11.5 , -48.5 **)**

4) What are the coordinates of the point where the following two lines meet?

Equation 1: **2y = –4x + 16**

$\frac{2y}{2} = \frac{-4x}{2} + \frac{16}{2}$

$y = -2x+8$

Equation 2: **–10x + 5y + 80 = 0**

$\frac{-10x}{5} + \frac{5y}{5} + \frac{80}{5} = 0$

$-2x+y+16 = 0$

$y = 2x-16$

① $-2x+8 = 2x-16$

$-2x-2x = -16-8$

$\frac{-4x}{-4} = \frac{-24}{-4}$

$x = 6$

② $2y = -4x+16$

$2y = -4(6)+16$

$\frac{2y}{2} = \frac{-8}{2}$

$y = -4$

**Answer (** 6 , -4 **)**