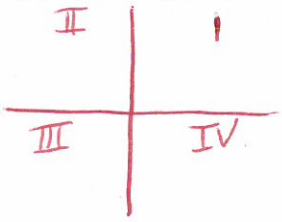
Answer Key

Name: _____
Date: _____

Systems of Equations 01
(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*'**



1) Solve for 'x'.

a) ① $2x + 3 = 3x - 4$

$-3x \quad -3x$

$2x - 3x + 3 = -4$

$-3 \quad -3$

$2x - 3x = -4 - 3$

$\frac{-1x}{-1} = \frac{-7}{-1}$

$x = 7$

② Plug in

$y = 2x + 3$

$y = 2(7) + 3$

$y = 17$

③ Coordinates

(x, y)

$(7, 17)$

b) $6x + 9 = 4x + 11$ ③ (1, 15)

① $6x - 4x = 11 - 9$

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

$x = 1$

② $y = 6x + 9$

$y = 6(1) + 9$

$y = 15$

c) $-3x + 2 = 2x - 18$

① $-3x - 2x = -18 - 2$

$\frac{-5x}{-5} = \frac{-20}{-5}$

$x = 4$

② $y = -3x + 2$

$y = -3(4) + 2$

$y = -12 + 2$

$y = -10$

③ $(4, -10)$

d) $12x + 7 = 15x - 14$

① $12x - 15x = -14 - 7$

$\frac{-3x}{-3} = \frac{-21}{-3}$

$x = 7$

② $y = 12x + 7$

$y = 12(7) + 7$

$y = 91$

③ $(7, 91)$

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

Equation 1: $2y = -1x + 8$ → $y = -\frac{1}{2}x + 8$

Multiply by LCM 2 → ①

$-\frac{1}{2}x + 4 = \frac{3}{2}x - 4$

$-x + 8 = 3x - 8$

$-4x = -16$

$x = 4$

Equation 2: $4y = 6x - 16$ → $y = \frac{3}{2}x - 4$

② Plug in $y = \frac{3}{2}(4) - 4$

$y = 2$

③ (4, 2)

Answer (4, 2)

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

Equation 1: $3y = 6x - 9$ → $y = 2x - 3$

Equation 2: $4y = -4x + 24$ → $y = -x + 6$

① $2x - 3 = -x + 6$

$3x = 9$

$x = 3$

② Plug in (choose one to the two equations)

$y = -(3) + 6$

$y = 3$

Answer (3, 3)

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

Equation 1: $6y - 9x + 42 = 0$

$6y = 9x - 42$

$y = \frac{3}{2}x - 7$

Equation 2: $5y + 10x - 35 = 0$

$5y = -10x + 35$

$y = -2x + 7$

LCM 2

① $\frac{3}{2}x - 7 = -\frac{2}{1}x + 7$

$3x - 14 = -4x + 14$

$7x = 28$

$x = 4$

② Plug in

$y = -2(4) + 7$

$y = -1$

Answer (4, -1)