

WS PC #1 Review - Unit 4

Name _____

Key

Solve each system by graphing.

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

$y = \frac{3}{4}x - 2$

(4, 1)

2) $y = -x - 4$
 $y = 7x + 4$

(-1, -3)

3) $5x - y = 2$
 $5x - y = -2$

No solution

$$\begin{array}{r} 5x - y = 2 \\ -5x \quad -5x \\ \hline y = -5x + 2 \\ y = 5x - 2 \end{array}$$

$$\begin{array}{r} 5x - y = -2 \\ -5x \quad -5x \\ \hline y = -5x - 2 \\ y = 5x + 2 \end{array}$$

4) $x = -2$
 $x - y = 1$

(-2, -3)

$$\begin{array}{r} -2 - y = 1 \\ +2 \quad +2 \\ \hline y = -3 \end{array}$$

Solve each system by substitution.

5) $3x - 3y = 12$
 $y = 3x - 4$

$$\begin{array}{r} 3x - 3(3x - 4) = 12 \\ 3x - 9x + 12 = 12 \\ -6x + 12 = 12 \\ -6x \quad -12 \\ \hline -6x = 0 \\ x = 0 \end{array}$$

$$\begin{array}{l} y = 3x - 4 \\ y = 3(0) - 4 \\ y = 0 - 4 \\ y = -4 \end{array}$$

(0, -4)

6) $8x + 4y = -16$
 $y = x + 14$

$$\begin{array}{r} 8x + 4(x + 14) = -16 \\ 8x + 4x + 56 = -16 \\ 12x + 56 = -16 \\ -56 \quad -56 \\ \hline 12x = -72 \\ x = -6 \end{array}$$

$$\begin{array}{l} y = x + 14 \\ y = -6 + 14 \\ y = 8 \end{array}$$

(-6, 8)

7) $-8x - y = 11$
 $y = -5x - 8$

$$\begin{array}{r} -8x - (-5x - 8) = 11 \\ -8x + 5x + 8 = 11 \\ -3x + 8 = 11 \\ -8 \quad -8 \\ \hline -3x = 3 \\ x = -1 \end{array}$$

$$\begin{array}{l} y = -5x - 8 \\ y = -5(-1) - 8 \\ y = 5 - 8 \\ y = -3 \end{array}$$

(-1, -3)

8) $-14x + 2y = -2$
 $y = 7x - 1$

$$\begin{array}{r} -14x + 2(7x - 1) = -2 \\ -14x + 14x - 2 = -2 \\ +2 \quad +2 \\ \hline 0 = 0 \end{array}$$

Infinitely many solutions

9) $y = -2x - 9$
 $y = 2x + 11$

$$\begin{array}{r} 2x + 11 = -2x - 9 \\ +2x \quad +2x \\ \hline 4x + 11 = -9 \\ -11 \quad -11 \\ \hline 4x = -20 \\ x = -5 \end{array}$$

$$\begin{array}{l} y = 2(-5) + 11 \\ y = -10 + 11 \\ y = 1 \end{array}$$

(-5, 1)

10) $y = -3x + 20$
 $y = -4$

$$\begin{array}{r} -4 = -3x + 20 \\ -20 \quad -20 \\ \hline -24 = -3x \\ -3 \quad -3 \\ \hline 8 = x \end{array}$$

(8, -4)

$$11) \begin{aligned} y &= 3x - 10 \\ y &= 6x - 16 \end{aligned}$$

$$\begin{array}{r} 6x - 16 = 3x - 10 \\ -3x \quad -3x \\ \hline 3x - 16 = -10 \\ +16 \quad +16 \\ \hline 3x = 6 \\ \frac{3x}{3} = \frac{6}{3} \\ x = 2 \end{array}$$

$$\begin{aligned} y &= 3x - 10 \\ y &= 3(2) - 10 \\ y &= 6 - 10 \\ y &= -4 \end{aligned}$$

$(2, -4)$

Solve each system by elimination.

$$13) \begin{aligned} -18x + 2y &= -28 \\ -2(9x + y) &= -13 \end{aligned}$$

$$\begin{array}{r} 18x + 2y = -28 \\ + -18x - 2y = 26 \\ \hline 0 = -2 \end{array}$$

No solution

$$15) \begin{aligned} -10x + 8y &= 14 \cdot 2 \\ -4x + 16y &= -20 \end{aligned}$$

$$\begin{array}{r} 20x - 16y = -28 \\ + -4x + 16y = -20 \\ \hline 16x = -48 \\ \frac{16x}{16} = \frac{-48}{16} \\ x = -3 \end{array}$$

$$\begin{aligned} -4x + 16y &= -20 \\ -4(-3) + 16y &= -20 \\ 12 + 16y &= -20 \\ -16y &= -32 \\ \frac{16y}{16} &= \frac{-32}{16} \\ y &= -2 \end{aligned}$$

$(-3, -2)$

$$17) \begin{aligned} -5x - 3y &= -20 \cdot 2 \\ 2x + 4y &= -6 \cdot 5 \end{aligned}$$

$$\begin{array}{r} -10x - 6y = -40 \\ + 10x + 20y = -30 \\ \hline 14y = -70 \\ \frac{14y}{14} = \frac{-70}{14} \\ y = -5 \end{array}$$

$$\begin{aligned} 2x + 4y &= -6 \\ 2x + 4(-5) &= -6 \\ 2x - 20 &= -6 \\ +20 \quad +20 \\ \hline 2x &= 14 \\ \frac{2x}{2} &= \frac{14}{2} \end{aligned}$$

$(7, -5)$

$$19) \begin{aligned} -9x + 9y &= 9 \cdot 2 \\ -2x + 4y &= 6 \cdot 9 \end{aligned}$$

$$\begin{array}{r} 18x - 18y = 18 \\ + -18x + 36y = 54 \\ \hline 18y = 72 \\ \frac{18y}{18} = \frac{72}{18} \\ y = 4 \end{array}$$

$$\begin{aligned} -2x + 4y &= 6 \\ -2x + 4(4) &= 6 \\ -2x + 16 &= 6 \\ -16 \quad -16 \\ \hline -2x &= -10 \\ \frac{-2x}{-2} &= \frac{-10}{-2} \end{aligned}$$

$(5, 4)$

$$12) \begin{aligned} y &= x - 7 \\ y &= -3x + 5 \end{aligned}$$

$$\begin{array}{r} -3x + 5 = x - 7 \\ +3x \quad +3x \\ \hline 5 = 4x - 7 \\ +7 \quad +7 \\ \hline 12 = 4x \\ \frac{12}{4} = \frac{4x}{4} \\ 3 = x \end{array}$$

$$\begin{aligned} y &= x - 7 \\ y &= 3 - 7 \\ y &= -4 \end{aligned}$$

$(3, -4)$

$$14) \begin{aligned} -x + 6y &= 18 \cdot 7 \\ -7x + 3y &= -30 \end{aligned}$$

$$\begin{array}{r} 7x - 42y = -126 \\ + -7x + 3y = -30 \\ \hline -39y = -156 \\ \frac{-39y}{-39} = \frac{-156}{-39} \\ y = 4 \end{array}$$

$$\begin{aligned} -x + 6y &= 18 \\ -x + 6(4) &= 18 \\ -x + 24 &= 18 \\ -24 \quad -24 \\ \hline -x &= -6 \\ \frac{-x}{-1} &= \frac{-6}{-1} \\ x &= 6 \end{aligned}$$

$(6, 4)$

$$16) \begin{aligned} 10x - 3y &= -19 \cdot 2 \\ 20x - 10y &= -10 \end{aligned}$$

$$\begin{array}{r} -20x + 6y = 38 \\ + 20x - 10y = -10 \\ \hline -4y = 28 \\ \frac{-4y}{-4} = \frac{28}{-4} \\ y = -7 \end{array}$$

$$\begin{aligned} 10x - 3y &= -19 \\ 10x - 3(-7) &= -19 \\ 10x + 21 &= -19 \\ -21 \quad -21 \\ \hline 10x &= -40 \\ \frac{10x}{10} &= \frac{-40}{10} \\ x &= -4 \end{aligned}$$

$(-4, -7)$

$$18) \begin{aligned} -7x - 2y &= -27 \cdot 3 \\ -2x + 3y &= 28 \cdot 2 \end{aligned}$$

$$\begin{array}{r} -21x - 6y = -81 \\ + -4x + 6y = 56 \\ \hline -25x = -25 \\ \frac{-25x}{-25} = \frac{-25}{-25} \\ x = 1 \end{array}$$

$$\begin{aligned} -2x + 3y &= 28 \\ -2(1) + 3y &= 28 \\ -2 + 3y &= 28 \\ +2 \quad +2 \\ \hline 3y &= 30 \\ \frac{3y}{3} &= \frac{30}{3} \\ y &= 10 \end{aligned}$$

$(1, 10)$

$$20) \begin{aligned} -5x + 3y &= 1 \cdot 2 \\ -2x - 7y &= 25 \cdot 5 \end{aligned}$$

$$\begin{array}{r} 10x - 6y = 2 \\ + -10x - 35y = 125 \\ \hline -41y = 123 \\ \frac{-41y}{-41} = \frac{123}{-41} \\ y = -3 \end{array}$$

$$\begin{aligned} -2x - 7y &= 25 \\ -2x - 7(-3) &= 25 \\ -2x + 21 &= 25 \\ -21 \quad -21 \\ \hline -2x &= 4 \\ \frac{-2x}{-2} &= \frac{4}{-2} \\ x &= -2 \end{aligned}$$

$(-2, -3)$