Algebra 1

Name_____ **Key!**

WS PC #1 Review - Unit 4

Solve each system by graphing.

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

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

   $(4, 1)$

2) $y = -x - 4$

   $y = 7x + 4$

   $(-1, -3)$

3) $5x - y = 2$

   $5x - y = -2$

   No solution

$$5x - y = 2$$
$$-5x \qquad -5x$$
$$\frac{-y = -5x + 2}{-1 \quad -1}$$
$$y = 5x - 2$$

$$5x - y = -2$$
$$-5x \qquad -5x$$
$$\frac{-y = -5x - 2}{-1 \quad -1}$$
$$y = 5x + 2$$

4) $x = -2$

   $x - y = 1$

   $(-2, -3)$

$$-2 - y = 1$$
$$+2 \qquad +2$$
$$\frac{-y = 3}{-1}$$
$$y = -3$$

Solve each system by substitution.

5) $3x - 3y = 12$

   $y = (3x - 4)$

$$3x - 3(3x - 4) = 12 \qquad y = 3x - 4$$
$$3x - 9x + 12 = 12 \qquad y = 3(0) - 4$$
$$-6x + 12 = 12 \qquad y = 0 - 4$$
$$\quad\; -12 \; -12 \qquad y = -4$$
$$\frac{-6x = 0}{-6} \quad x = 0 \qquad (0, -4)$$

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

   $y = (x + 14)$

$$8x + 4(x + 14) = -16 \qquad y = x + 14$$
$$8x + 4x + 56 = -16 \qquad y = -6 + 14$$
$$12x + 56 = -16 \qquad y = 8$$
$$\quad\; -56 \; -56$$
$$\frac{12x = -72}{12} \quad x = -6 \qquad (-6, 8)$$

7) $-8x - y = 11$

   $y = (-5x - 8)$

$$-8x - (-5x - 8) = 11 \qquad y = -5x - 8$$
$$-8x + 5x + 8 = 11 \qquad y = -5(-1) - 8$$
$$-3x + 8 = 11 \qquad y = 5 - 8$$
$$\quad\; -8 \; -8 \qquad y = -3$$
$$\frac{-3x = 3}{-3} \quad x = -1 \qquad (-1, -3)$$

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

   $y = (7x - 1)$

$$-14x + 2(7x - 1) = -2$$
$$-14x + 14x - 2 = -2$$
$$\quad\quad\quad +2 \; +2$$
$$\quad\quad\quad 0 = 0$$

Infinitely many solutions

9) $y = -2x - 9$

   $y = (2x + 11)$

$$2x + 11 = -2x - 9 \qquad y = 2(-5) + 11$$
$$+2x \qquad +2x \qquad y = -10 + 11$$
$$4x + 11 = -9 \qquad y = 1$$
$$\quad\; -11 \; -11$$
$$\frac{4x = -20}{4}$$
$$x = -5 \qquad (-5, 1)$$

10) $y = -3x + 20$

    $y = (-4)$

$$-4 = -3x + 20$$
$$-20 \qquad\quad -20$$
$$\frac{-24 = -3x}{-3}$$
$$8 = x \qquad (8, -4)$$

-1-

11) $y = 3x - 10$
$y = \boxed{6x - 16}$

$6x - 16 = 3x - 10$
$\underline{-3x \qquad -3x}$
$3x - 16 = -10$
$\underline{+16 \quad +16}$
$\dfrac{3x}{3} = \dfrac{6}{3}$
$x = 2$

$y = 3x - 10$
$y = 3(2) - 10$
$y = 6 - 10$
$y = -4$

$\boxed{(2, -4)}$

12) $y = x - 7$
$y = \boxed{-3x + 5}$

$-3x + 5 = x - 7$
$\underline{+3x \qquad +3x}$
$5 = 4x - 7$
$\underline{+7 \qquad +7}$
$\dfrac{12}{4} = \dfrac{4x}{4}$
$3 = x$

$y = x - 7$
$y = 3 - 7$
$y = -4$

$\boxed{(3, -4)}$

Solve each system by elimination.

13) $18x + 2y = -28$
$-2(9x + y = -13)$

$18x + 2y = -28$
$\underline{+ -18x - 2y = 26}$
$0 = -2$

$\boxed{\text{No solution}}$

14) $(-x + 6y = 18) \cdot -7$
$-7x + 3y = -30$

$7x - 42y = -126$
$\underline{+ -7x + 3y = -30}$
$\dfrac{-39y}{-39} = \dfrac{-156}{-39}$
$y = 4$

$-x + 6y = 18$
$-x + 6(4) = 18$
$-x + 24 = 18$
$\underline{\quad -24 \; -24}$
$\dfrac{-x}{-1} = \dfrac{-6}{-1}$
$x = 6$

$\boxed{(6, 4)}$

15) $(-10x + 8y = 14) \cdot -2$
$-4x + 16y = -20$

$20x - 16y = -28$
$\underline{+ -4x + 16y = -20}$
$\dfrac{16x}{16} = \dfrac{-48}{16}$
$x = -3$

$-4x + 16y = -20$
$-4(-3) + 16y = -20$
$12 + 16y = -20$
$\underline{-12 \qquad\quad -12}$
$\dfrac{16y}{16} = \dfrac{-32}{16}$
$y = -2$

$\boxed{(-3, -2)}$

16) $(10x - 3y = -19) \cdot -2$
$20x - 10y = -10$

$-20x + 6y = 38$
$\underline{+ 20x - 10y = -10}$
$\dfrac{-4y}{-4} = \dfrac{28}{-4}$
$y = -7$

$10x - 3y = -19$
$10x - 3(-7) = -19$
$10x + 21 = -19$
$\underline{\quad -21 \quad -21}$
$\dfrac{10x}{10} = \dfrac{-40}{10}$
$x = -4$

$\boxed{(-4, -7)}$

17) $(-5x - 3y = -20) \cdot 2$
$(2x + 4y = -6) \cdot 5$

$-10x - 6y = -40$
$\underline{+ 10x + 20y = -30}$
$\dfrac{14y}{14} = \dfrac{-70}{14}$
$y = -5$

$2x + 4y = -6$
$2x + 4(-5) = -6$
$2x - 20 = -6$
$\underline{+20 \quad +20}$
$\dfrac{2x}{2} = \dfrac{14}{2}$
$x = 7$

$\boxed{(7, -5)}$

18) $(-7x - 2y = -27) \cdot 3$
$(-2x + 3y = 28) \cdot 2$

$-21x - 6y = -81$
$\underline{+ -4x + 6y = 56}$
$\dfrac{-25x}{-25} = \dfrac{-25}{-25}$
$x = 1$

$-2x + 3y = 28$
$-2(1) + 3y = 28$
$-2 + 3y = 28$
$\underline{+2 \qquad\quad +2}$
$\dfrac{3y}{3} = \dfrac{30}{3}$
$y = 10$

$\boxed{(1, 10)}$

19) $(-9x + 9y = 9) \cdot -2$
$(-2x + 4y = 6) \cdot 9$

$18x - 18y = -18$
$\underline{+ -18x + 36y = 54}$
$\dfrac{18y}{18} = \dfrac{36}{18}$
$y = 2$

$-2x + 4y = 6$
$-2x + 4(2) = 6$
$-2x + 8 = 6$
$\underline{-8 \; -8}$
$\dfrac{-2x}{-2} = \dfrac{-2}{-2}$
$x = 1$

$\boxed{(1, 2)}$

20) $(-5x + 3y = 1) \cdot -2$
$(-2x - 7y = 25) \cdot 5$

$10x - 6y = -2$
$\underline{+ -10x - 35y = 125}$
$\dfrac{-41y}{-41} = \dfrac{123}{-41}$
$y = -3$

$-2x - 7y = 25$
$-2x - 7(-3) = 25$
$-2x + 21 = 25$
$\underline{\quad -21 \; -21}$
$\dfrac{-2x}{-2} = \dfrac{4}{-2}$
$x = -2$

$\boxed{(-2, -3)}$

-2-