

NAME: KEY

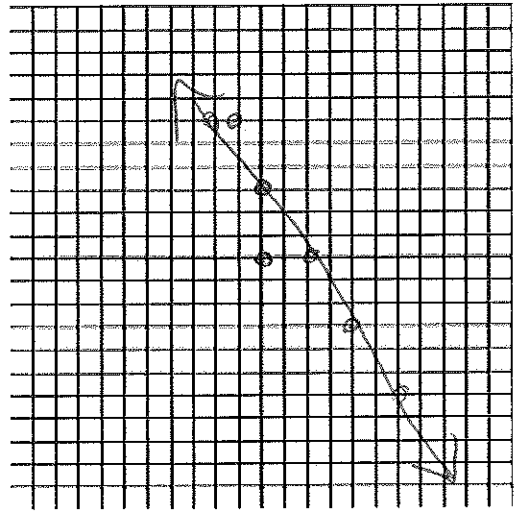
DATE: _____ Intro: Solving Linear Systems

Directions: Graph each system of equations and state its solution

1.) $2y + 3x = 6$
 $4y + 6x = 12$

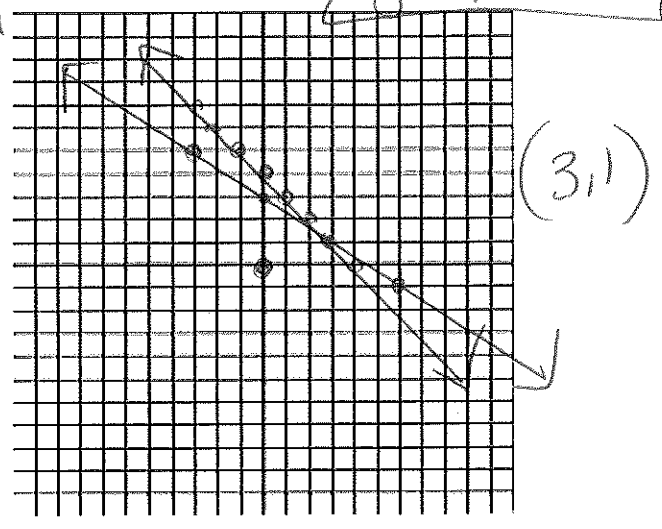
$2y = -3x + 6$
 $y = -\frac{3}{2}x + 3$

$4y = -6x + 12$
 $y = -\frac{3}{2}x + 3$



2.) $x + y = 4$
 $2x + 3y = 9$

$y = -x + 4$
 $3y = -2x + 9$
 $y = -\frac{2}{3}x + 3$



Directions: Solve each system of equations using the substitution method.

3.) $2x - 5y = 9$
 $-3x + y = -7$

$y = 3x - 7$
 $2x - 5(3x - 7) = 9$
 $2x - 15x + 35 = 9$
 $-13x = -26$
 $x = 2$
 $y = 3(2) - 7 = -1$
 $(2, -1)$

4.) $x + y = 2$
 $x - 2y = 0$

$x = -y + 2$
 $-y + 2 - 2y = 0$
 $-3y = -2$
 $y = \frac{2}{3}$
 $x = -\frac{2}{3} + 2 = \frac{4}{3}$
 $(\frac{4}{3}, \frac{2}{3})$

5.) $\frac{3}{2}x - y = 11$
 $\frac{13}{4}x + y = 12$

$5x - 2y = 22$
 $13x + 4y = 48$
 $y = -\frac{13}{4}x + 12$
 $5x - 2(-\frac{13}{4}x + 12) = 22$
 $\frac{10}{4}x + \frac{13}{2}x - 24 = 22$
 $\frac{13}{4}x + y = 12$
 $13 + y = 12$
 $y = -1$
 $x = 4$
 $(4, -1)$

6.) $3x - 2y = -3$
 $3x + y = 3$

$y = -3x + 3$
 $3x - 2(-3x + 3) = -3$
 $3x + 6x - 6 = -3$
 $9x = 3$
 $x = \frac{1}{3}$
 $y = -3(\frac{1}{3}) + 3 = 2$
 $(\frac{1}{3}, 2)$

Directions: Solve each system of equations using the elimination method.

~~(2)~~ ~~(18)~~

$$7.) \begin{cases} 3x - 6y = 15 \\ -3x + 5y = -8 \end{cases}$$

$$2x + 4z = 15$$

$$3x = 27$$

$$x = 9$$

$$-y = 7$$

$$y = -7$$

$$(9, -7)$$

$$8.) \begin{cases} 8x + 3y = 4 \\ 4x - 9y = -5 \end{cases}$$

$$24x + 9y = 12$$

$$4x - 9y = -5$$

$$20x = 7$$

$$x = \frac{1}{4}$$

$$y = \frac{2}{3}$$

$$\frac{1}{4}, \frac{2}{3}$$

$$9.) \begin{cases} 4a + 3b = -2 \\ 5a + 7b = 17 \end{cases}$$

$$20a + 15b = -10$$

$$-20a - 28b = -68$$

$$-13b = -78$$

$$b = 6$$

$$4a + 3(6) = -2$$

$$4a + 18 = -2$$

$$4a = -20$$

$$a = -5$$

$$(-5, 6)$$

$$10.) \begin{cases} 4x - 6y = 12 \\ x - 7y = 14 \end{cases}$$

$$-4x + 28y = 56$$

$$22y = 68$$

$$y = -2$$

$$x = 0$$

$$(0, -2)$$

Directions: Solve each system of equations using either algebraic method.

$$11.) \begin{cases} 9x + y = 30 \\ 6x - 15 = y \end{cases}$$

$$9x + 6x - 15 = 30$$

$$15x = 45$$

$$x = 3$$

$$3 = y$$

$$(3, 3)$$

$$12.) \begin{cases} 4x + 4y = -6 \\ 5x + 3y = 6 \end{cases}$$

$$20x + 20y = -30$$

$$-20x - 12y = -24$$

$$8y = -54$$

$$y = -\frac{27}{4}$$

$$4x + 4(-\frac{27}{4}) = -6$$

$$4x = 21$$

$$x = \frac{21}{4}$$

$$(\frac{21}{4}, -\frac{27}{4})$$