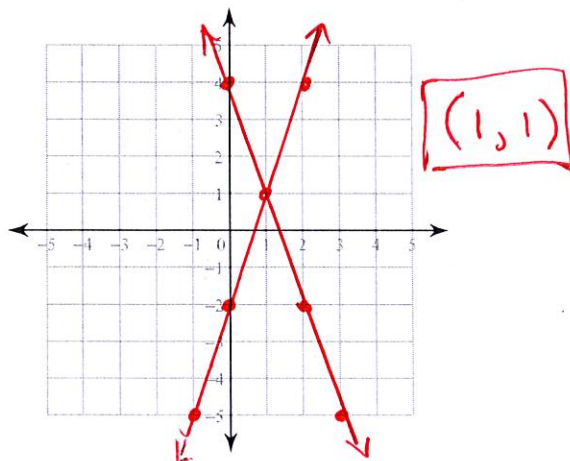


Systems of Two Equations

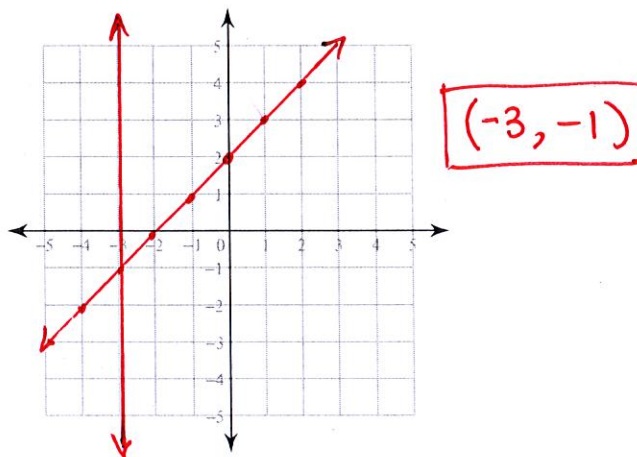
Date _____ Period _____

Solve each system by graphing.

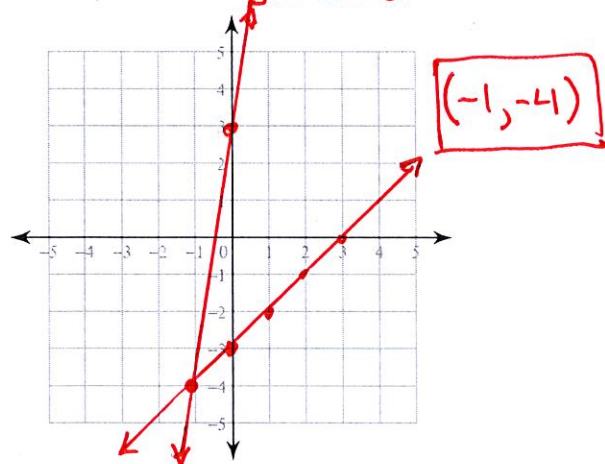
$$\begin{aligned} 1) \quad y &= -3x + 4 \\ y &= 3x - 2 \end{aligned}$$



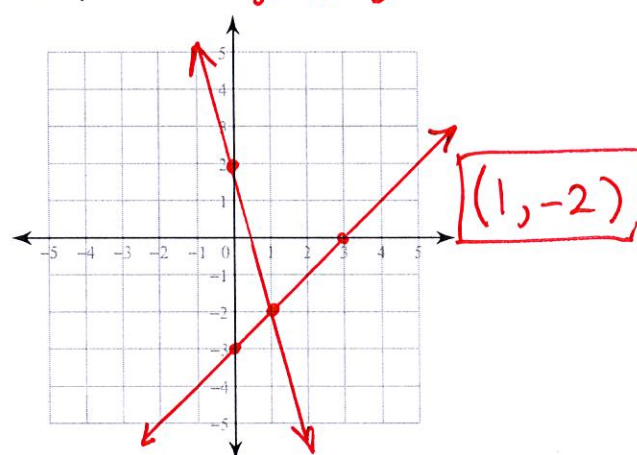
$$\begin{aligned} 2) \quad y &= x + 2 \\ x &= -3 \end{aligned}$$



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



$$\begin{aligned} 4) \quad 4x + y &= 2 \rightarrow y = -4x + 2 \\ x - y &= 3 \rightarrow y = x - 3 \end{aligned}$$



Solve each system by substitution.

$$\begin{aligned} 5) \quad y &= 4x - 9 \\ y &= x - 3 \end{aligned}$$

$$\begin{aligned} 4x - 9 &= x - 3 \\ -x & \quad -x \\ 3x - 9 &= -3 \\ +9 & \quad +9 \\ 3x &= 6 \\ x &= 2 \end{aligned}$$

$$\begin{aligned} y &= 2 - 3 \\ y &= -1 \end{aligned}$$

The solution is $(2, -1)$, which is marked with a red dot and labeled in a red box.

$$\begin{aligned} 7) \quad y &= -5 \\ 5x + 4y &= -20 \end{aligned}$$

$$(0, -5)$$

$$\begin{aligned} 6) \quad 4x + 2y &= 10 \\ x - y &= 13 \end{aligned}$$

$$\begin{aligned} +y & \quad +y \\ x &= y + 13 \end{aligned}$$

$$\begin{aligned} 4(y + 13) + 2y &= 10 \\ 4y + 52 + 2y &= 10 \\ 6y + 52 &= 10 \\ -52 & \quad -52 \\ 6y &= -42 \\ y &= -7 \end{aligned}$$

$$\begin{aligned} x &= -7 + 13 \\ x &= 6 \end{aligned}$$

The solution is $(6, -7)$, which is marked with a red dot and labeled in a red box.

$$\begin{aligned} 8) \quad x + 7y &= 0 \\ 2x - 8y &= 22 \end{aligned}$$

$$(7, -1)$$

$$9) \begin{cases} 6x + 8y = -22 \\ y = -5 \end{cases} \quad \boxed{(3, -5)}$$

$$10) \begin{cases} -7x + 2y = 18 \\ 6x + 6y = 0 \end{cases} \quad \boxed{(-2, 2)}$$

$$11) \begin{cases} 7x + 2y = -19 \\ -x + 2y = 21 \end{cases} \quad \boxed{(-5, 8)}$$

$$12) \begin{cases} 3x - 5y = 17 \\ y = -7 \end{cases} \quad \boxed{(-6, -7)}$$

$$13) \begin{cases} -7x + 4y = 24 \\ 4x - 4y = 0 \end{cases} \quad \boxed{(-8, -8)}$$

$$14) \begin{cases} 4x - y = 20 \\ -2x - 2y = 10 \end{cases} \quad \boxed{(3, -8)}$$

Solve each system by elimination.

$$15) \begin{cases} 8x - 6y = -20 \\ -16x + 7y = 30 \end{cases} \quad \boxed{(-1, 2)}$$

$\rightarrow 16x - 12y = -40$
 $-5y = -10$
 $y = 2$
 $8x - 6(2) = -20$
 $8x - 12 = -20$
 $+12 \quad +12$
 $8x = -8 \rightarrow x = -1$

$$16) \begin{cases} 6x - 12y = 24 \\ -x - 6y = 4 \end{cases} \quad \boxed{(2, -1)}$$

$$17) \begin{cases} -8x - 10y = 24 \\ 6x + 5y = 2 \end{cases} \quad \boxed{(7, -8)}$$

$$18) \begin{cases} -24 - 8x = 12y \\ 1 + \frac{5}{9}y = -\frac{7}{18}x \end{cases} \quad \boxed{(6, -6)}$$

$$19) \begin{cases} -4y - 11x = 36 \\ 20 = -10x - 10y \end{cases} \quad \boxed{(4, -2)}$$

$$20) \begin{cases} -9 + 5y = -4x \\ -11x = -20 + 9y \end{cases} \quad \boxed{(1, 1)}$$

$$21) \begin{cases} 0 = -2y + 10 - 6x \\ 14 - 22y = 18x \end{cases} \quad \boxed{(2, -1)}$$

$$22) \begin{cases} -16y = 22 + 6x \\ -11y - 4x = 15 \end{cases} \quad \boxed{(-1, -1)}$$

$$23) \begin{cases} -16 + 20x - 8y = 0 \\ 36 = -18y - 22x \end{cases} \quad \boxed{(0, -2)}$$

$$24) \begin{cases} -\frac{5}{7} - \frac{11}{7}x = -y \\ 2y = 7 + 5x \end{cases} \quad \boxed{(-3, -4)}$$

Critical thinking questions:

25) Write a system of equations with the solution $(4, -3)$.