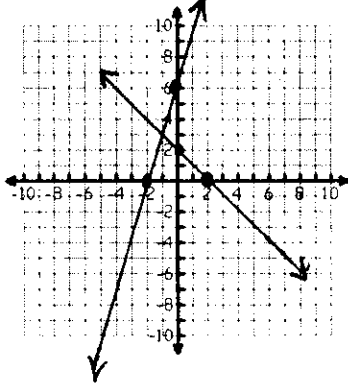


Algebra One
Chapter 7 Practice Test

Name _____
Date _____ Period _____

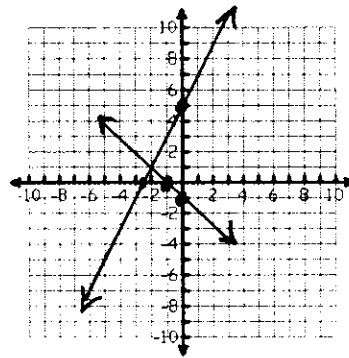
Solve the linear system by graphing. Check your solution.

1.
$$\begin{cases} 3x - y = -6 \\ x + y = 2 \end{cases} \quad (-1, 3)$$



$-1 + 3 = 2 \checkmark$
 $3(-1) - 3 = -6$
 $-3 - 3 = -6 \checkmark$

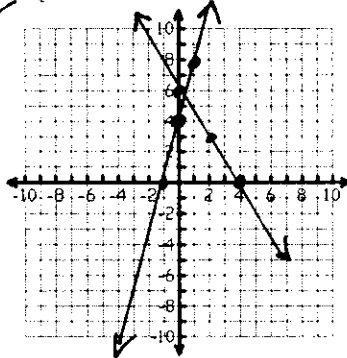
2.
$$\begin{cases} -2x + y = 5 \\ x + y = -1 \end{cases} \quad (-2, 1)$$



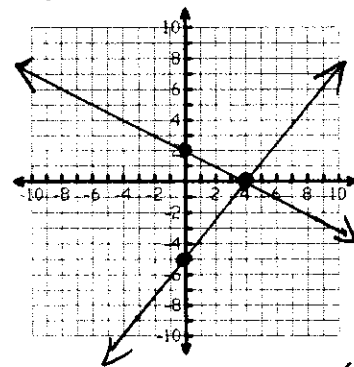
$-2 + 1 = -1 \checkmark$
 $-2(-2) + (1) = 5$
 $4 + 1 = 5 \checkmark$

3.
$$\begin{cases} y = 4x + 4 \\ 3x + 2y = 12 \end{cases} \quad (3.6, 5.45)$$

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

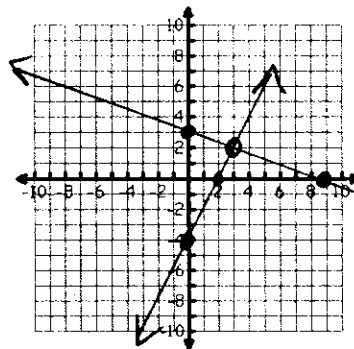


4.
$$\begin{cases} 5x - 4y = 20 \\ x + 2y = 4 \end{cases} \quad (4, 0)$$



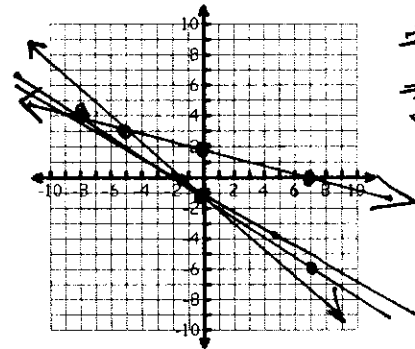
$5(4) - 4(0) = 20$
 $20 - 0 = 20 \checkmark$
 $4 + 2(0) = 4$
 $4 + 0 = 4 \checkmark$

5.
$$\begin{cases} x + 3y = 9 \\ 2x - y = 4 \end{cases} \quad (3, 2)$$



$3 + 2(3) = 9$
 $3 + 6 = 9 \checkmark$
 $2(3) - (2) = 4$
 $6 - 2 = 4 \checkmark$

6.
$$\begin{cases} 2x + 7y = 14 \\ 5x + 7y = -7 \end{cases} \quad \begin{matrix} (-7, 4) \\ (-8, 4) \end{matrix}$$



~~$2(-8) + 7(4) =$~~
 ~~$-16 + 28 =$~~
 $5(-7) + 7(4) = -7$
 $-35 + 28 = -7 \checkmark$

$\frac{-40}{28}$
 $\frac{-72}{28}$

Solve the linear system using substitution.

7.
$$\begin{cases} y = 5x - 7 \\ -4x + y = -1 \end{cases} \quad \boxed{(6, 23)}$$

$$-4x + 5x - 7 = -1$$

$$x = 6$$

8.
$$\begin{cases} x = y - 11 \\ x - 3y = 1 \end{cases} \quad x = -17$$

$$y - 11 - 3y = 1 \quad \boxed{(-17, -6)}$$

$$-2y = 12$$

$$y = -6$$

9.
$$\begin{cases} 3x + y = -19 \\ x - y = 7 \end{cases} \quad y = -10$$

$$4x = -12$$

$$x = -3$$

$$\boxed{(-3, 7)}$$

10.
$$\begin{cases} 30x + 2y = 140 \\ 15x + y = 70 \\ 3x - 2y = -8 \end{cases}$$

$$12 - 2y = -8$$

$$-2y = -20$$

$$y = 10$$

$$33x = 132$$

$$x = 4$$

$$\boxed{(4, 10)}$$

11.
$$\begin{cases} 3y + x = 17 \\ x + y = 8 \end{cases} \quad x + 4.5 = 8$$

$$2y = 9 \quad x = 3.5$$

$$y = 4.5$$

$$\boxed{(3.5, 4.5)}$$

Calculate

12.
$$\begin{cases} 0.5x + y = 9 \\ 1.6x + 0.2y = 13 \end{cases} \quad y_1 = 9 - 0.5x$$

$$.2y_2 = 13 - 1.6x$$

$$y_2 = \frac{13}{.2} - \frac{1.6}{.2}x$$

$$5x + 10y = 90$$

$$16x + 2y = 130$$

$$5x + 10y = 90$$

$$-80x - 10y = -650$$

$$-75x =$$

$$\boxed{(7.4\bar{6}, 5.2\bar{6})}$$

Solve the linear system using elimination.

13.
$$\begin{cases} 8x + 3y = -9 \\ -8x + y = 29 \end{cases} \quad \begin{matrix} 40 + 12y = 9 \\ 27 \end{matrix}$$

$$4y = 20$$

$$y = 5$$

$$\boxed{(-3, 5)}$$

$$8x + 15 = -9$$

$$8x = -24$$

$$x = -3$$

14.
$$\begin{cases} x - 5y = -3 \\ 3x - 5y = 11 \end{cases} \quad \begin{matrix} 7 - 5y = -3 \\ -5y = 10 \\ y = 2 \end{matrix}$$

$$-2x = -14$$

$$x = 7$$

$$\boxed{(7, 2)}$$

$$15. \begin{cases} 4x + y = 17 \\ \cancel{7y = 4x - 9} \\ -4x + 7y = -9 \end{cases} \quad \begin{aligned} 4x + 1 &= 17 \\ 4x &= 16 \\ x &= 4 \end{aligned}$$

$$8y = 8$$

$$y = 1$$

(4, 1)

$$16. \begin{cases} 3x + 2y = -5 \\ \cancel{x - y = 10} \\ 2x - 2y = 20 \end{cases} \quad \begin{aligned} 3 - y &= 10 \\ -y &= 7 \\ y &= -7 \end{aligned}$$

$$5x = 15$$

$$x = 3$$

(3, -7)

$$17. \begin{cases} 3y = x + 5 \\ -3x + 8y = 19 \end{cases} \quad \begin{aligned} 6 &= x + 5 \\ 1 &= x \end{aligned}$$

$$3x + 9y = 15$$

$$\frac{17y = 34}{17} = \frac{34}{17}$$

$$y = 2$$

(1, 2)

$$18. \begin{cases} 6x - 5y = 9 \\ 9x - 7y = 15 \end{cases} \quad \begin{aligned} 42x - 35y &= 63 \\ -45x + 35y &= -75 \end{aligned}$$

$$-3x = -12$$

$$x = 4$$

$$24 - 5y = 9$$

$$-5y = -15$$

$$y = 3$$

(4, 3)

Tell whether the linear system has *one solution*, *no solution*, or *infinitely many solutions*.

$$19. \begin{cases} 15x - 3y = 12 \\ y = 5x - 4 \end{cases}$$

$$15x - 3(5x - 4) = 12$$

$$15x - 15x + 12 = 12$$

Infinitely many

$$20. \begin{cases} 4x - y = -4 \\ -8x + 2y = 2 \end{cases}$$

$$-8x + 2(4x + 4) = 2$$

$$-8x + 8x + 8 = 2$$

$$8 \neq 2$$

No Solution

$$21. \begin{cases} -12x + 3y = 18 \\ \cancel{4x + y = 6} \\ 12x + 3y = -18 \end{cases}$$

$$6y = 0$$

$$y = 0$$

one solution

$$22. \begin{cases} 6x - 7y = -5 \\ -12x + 14y = 10 \\ 12x - 14y = 10 \end{cases}$$

$$0 = 0$$

Infinitely many

$$23. \begin{cases} 3x - 4y = 24 \\ 3x + 4y = 24 \end{cases} \quad \begin{aligned} 24 - 4(y) &= 24 \\ y &= 0 \end{aligned}$$

$$6x = 48$$

$$x = 8$$

$$\boxed{(8, 0)}$$

$$24. \begin{cases} 10x - 2y = 14 & \times 3 & 30x - 6y = 42 \\ 15x - 3y = 21 & \times 2 & -30x + 6y = -42 \end{cases}$$

$$0 = 0$$

Infinite solutions

- ~~25.~~ Carrie and Dave each rent the same size moving truck for one day. They pay a fee of x dollars for the truck and y dollars per mile they drive. Carrie drives 150 miles and pays \$215. Dave drives 120 miles and pays \$176. Find the amount of the fee and the cost per mile.

$$215 \quad x + 150y$$

26. The rectangle has a perimeter P of 58 inches. The length l is one more than 3 times the width w . Write and solve a system of linear equations to find the length and width of the rectangle.

$$2w + 2l = 58$$

$$l = 3w + 1$$

$$\boxed{\begin{aligned} w &= 7'' \\ l &= 22'' \end{aligned}}$$

$$\begin{aligned} l &= 3(7) + 1 \\ &= 21 + 1 \\ &= 22'' \end{aligned}$$

$$2w + 2(3w + 1) = 58$$

$$2w + 6w + 2 = 58$$

$$8w = 56$$

$$w = 7$$