

$$\textcircled{18} \begin{cases} -9x + 4y = -12 \\ -9(-7x + 9y = 26) \end{cases}$$

$$\begin{array}{r} -63x + 28y = -84 \\ 63x - 81y = -234 \\ \hline -53y = -318 \\ y = 6 \end{array}$$

$$\textcircled{5} \left| \frac{v}{7} \right| + 9 = 10$$

$$\left| \frac{v}{7} \right| = 1$$

$$\begin{array}{cc} \text{(+ case)} & \text{(- case)} \\ \textcircled{7} \frac{v}{7} = 1 & \textcircled{7} \frac{v}{7} = -1 \\ v = 7 & v = -7 \end{array}$$

$$\textcircled{6} 5 + |k+7| = 0$$

$$\begin{array}{r} -5 \qquad -5 \\ \hline |k+7| = -5 \end{array}$$

no solution

Warm-up: before Section 4.3

Name: _____
 Period: _____

SHOW YOUR WORK as demonstrated in class notes

1. Given $f(x) = 9 - 4x$ $h(x) = 5x^2 - 7x$

a. Find $f(-2) =$

$$\begin{aligned} f(-2) &= 9 - 4(-2) \\ &= 9 + 8 \\ &= 17 \end{aligned}$$

b. Find $h(-2) =$

$$\begin{aligned} h(-2) &= 5(-2)^2 - 7(-2) \\ &= 5 \cdot 4 + 14 \\ &= 20 + 14 \\ &= 34 \end{aligned}$$

$$\begin{aligned} c. f(h(x)) &= 9 - 4(5x^2 - 7x) \\ &= 9 - 20x^2 + 28x \\ &= -20x^2 + 28x + 9 \end{aligned}$$

2. Write functions to model each situation:

a) There is 9 inches of snow on the ground and the snow is continuing to fall at a rate of 2 inches per hour.

$$S(h) = 9 + 2h = 2h + 9$$

b) Hank starts with 20 gallons of gas in his tank. He uses 4 gallons per hours.

$$G(h) = 20 - 4h$$

3. Solve by Substitution

$$\begin{cases} 3x + 4y = 4 \\ 2x + y = 6 \end{cases}$$

$$\begin{aligned} 3x + 4(-2x + 6) &= 4 \\ 3x - 8x + 24 &= 4 \\ -5x + 24 &= 4 \\ -5x &= -20 \end{aligned}$$

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

4. Solve by Elimination

$$\begin{cases} 5x + 3y = -9 \\ 2x - 5y = -16 \end{cases}$$

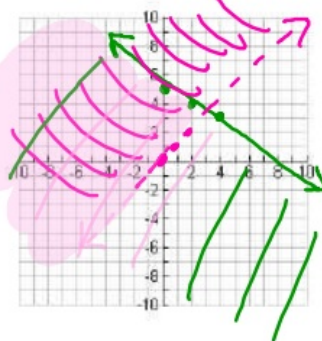
$$\begin{aligned} -10x - 6y &= 18 \\ 10x - 25y &= -80 \\ \hline -31y &= -62 \end{aligned}$$

$$\begin{aligned} y &= 2 \\ 5x + 3(2) &= -9 \\ 5x + 6 &= -9 \\ 5x &= -15 \\ x &= -3 \\ &(-3, 2) \end{aligned}$$

5. Solve by Graphing

$$\begin{cases} y \leq -\frac{1}{2}x + 5 \\ y > x \end{cases}$$

$m = -\frac{1}{2}$
 $b = 5$
 $m = 1$
 $b = 0$



Solving Application problems using Systems of Linear Equations

Example #1

The Math Club is planning a special promotion for fund raising. Each T-shirt will cost \$5.50 each and sweatshirts will cost \$9.75 each.

What combination of T-shirts and sweatshirts can provide for a total of 1500 contributors at a cost of \$10,375?

(answer the question in sentence form)

$$T + W = 1500$$

$$T = 1500 - W$$

$$T = 1500 - 500$$

$$T = 1000$$

$$5.50T + 9.75W = 10,375$$

$$5.50(1500 - W) + 9.75W = 10,375$$

$$8250 - 5.50W + 9.75W = 10,375$$

$$8250 + 4.25W = 10,375$$

$$4.25W = 2125$$

$$W = 500$$

There were 1000 T-shirts and 500 sweatshirts sold

Example #2

At the local deli they sell packages of assorted meats and cheeses.

The packages are made up of 40 slices of cheese at a cost of 8¢ each slice and meat at a cost of 16¢ each slice at a total cost of \$5.20. How many slices of each kind are in the packages?

(answer the question in sentence form)

$$C + M = 40$$

$$C = 40 - M$$

$$C = 40 - 25$$

$$C = 15$$

$$0.08C + 0.16M = 5.20$$

$$0.08(40 - M) + 0.16M = 5.20$$

$$3.2 - 0.08M + 0.16M = 5.20$$

$$3.2 + 0.08M = 5.20$$

$$0.08M = 2$$

$$M = 25$$

There are 15 slices of cheese and 25 slices of meat.

Homework!!