

Get out your homework and have it ready to check! Warm Up on the two problems below. Test on Tuesday!

Classwork - Target Check and Test Review #1

Warm Up: Solve the system of equations.

A) $y = 2x - 3$
 $y = -x + 18$

$2x - 3 = -x + 18$
 $+x \quad +x$
 $3x - 3 = 18$
 $+3 \quad +3$
 $3x = 21$
 $\frac{3}{3}x = \frac{21}{3}$
 $x = 7$

$(7, 11)$

B) $x + 3y = 1$
 $* -2x + y = 5$

$x + 3(2x + 5) = 1$
 $x + 6x + 15 = 1$

$7x + 15 = 1$
 $-15 \quad -15$
 $7x = -14$
 $\frac{7}{7}x = \frac{-14}{7}$
 $x = -2$

$-2x + y = 5$
 $+2x \quad +2x$
 $y = 2x + 5$

$x = -2$
 $-2(-2) + y = 5$
 $4 + y = 5$
 $-4 \quad -4$
 $y = 1$

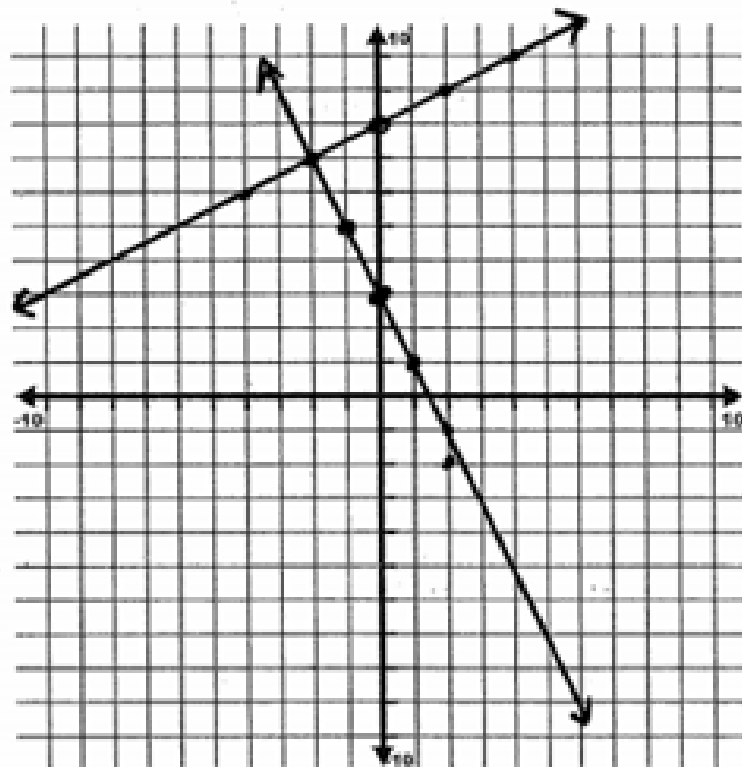
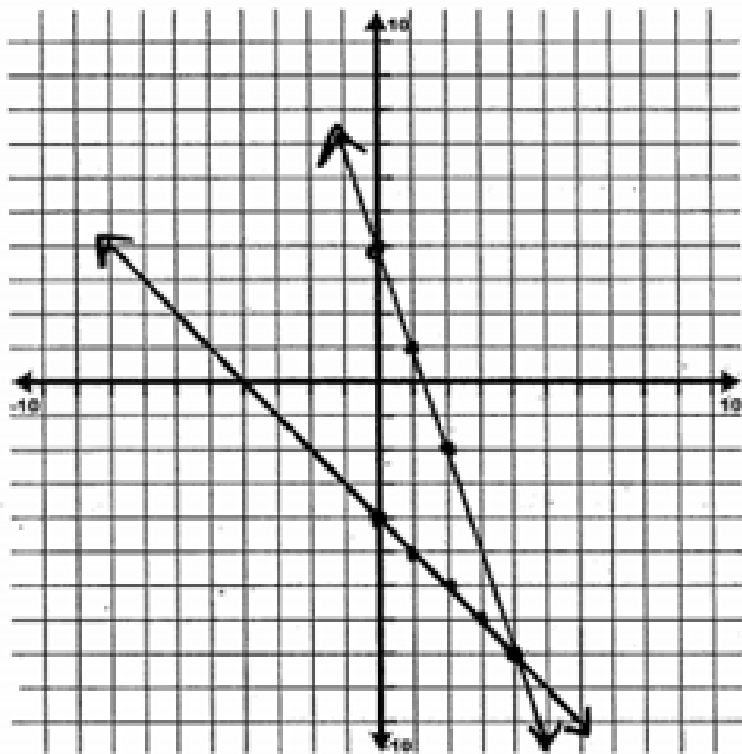
$(-2, 1)$

$$1) y = -3x + 4 \quad m = \underline{-3} \quad b = \underline{4}$$

$$y = -x - 4 \quad m = \underline{-1} \quad b = \underline{-4}$$

$$2) y = \frac{1}{2}x + 8 \quad m = \underline{\frac{1}{2}} \quad b = \underline{8}$$

$$y = -2x + 3 \quad m = \underline{-2} \quad b = \underline{+3}$$



of Solution(s): 1 Solution: (4, -8) # of Solution(s): 1 Solution: (-2, 7)

Solve each system of equations algebraically. If there is one solution, write that solution as an ordered pair.

3) $y = 2x + 5$

$y = -3x - 15$

$$\begin{array}{r} 2x + 5 = -3x - 15 \\ +3x \quad +3x \\ \hline 5x + 5 = -15 \\ -5 \quad -5 \\ \hline 5x = -20 \\ \frac{5}{5} \quad \frac{5}{5} \\ \hline x = -4 \end{array}$$

$$\begin{array}{l} y = 2(-4) + 5 \\ y = -8 + 5 \\ y = -3 \end{array}$$

Solution

(-4, -3)

4) $2x - 3y = -1$

$y = x - 1$

$$\begin{array}{r} 2x - 3(x - 1) = -1 \\ 2x - 3x + 3 = -1 \\ -1x + 3 = -1 \quad y = 4 - 1 \\ \quad -3 \quad -3 \quad y = 3 \\ \hline -1x = -4 \\ \frac{-1}{-1} \quad \frac{-4}{-1} \\ \hline x = 4 \end{array}$$

Solution

(4, 3)

5) $2x + y = 20$

$6x - 5y = 12$

$$\begin{array}{r} 2x + y = 20 \\ -2x \quad -2x \\ \hline y = -2x + 20 \end{array}$$

$$\begin{array}{r} 2(7) + y = 20 \\ 14 + y = 20 \\ -14 \quad -14 \\ \hline y = 6 \end{array}$$

Solution

(7, 6)

$$\begin{array}{r} 6x - 5(-2x + 20) = 12 \\ 6x + 10x - 100 = 12 \\ 16x - 100 = 12 \\ \quad +100 \quad +100 \\ \hline 16x = 112 \\ \frac{16}{16} \quad \frac{112}{16} \\ \hline x = 7 \end{array}$$

Write and solve a system of equations that represents each situation. **INTERPRET EACH SOLUTION.**

6) Jackson downloaded 34 more songs than Nicole downloaded. Together they downloaded 220 songs. How many songs did each download?

Define Variables

j = Jackson's songs

n = Nicole's songs

Equation 1 → j + n = 220

Equation 2 → j = n + 34

$$\begin{array}{r} n + 34 + n = 220 \\ 2n + 34 = 220 \\ -34 \quad -34 \\ \hline 2n = 186 \\ \frac{2}{2} \quad \frac{186}{2} \\ \hline n = 93 \end{array}$$

$$\begin{array}{r} j = n + 34 \\ j = 93 + 34 \\ j = 127 \end{array}$$

Solution

Solution Interpretation → Jackson had 127 songs and Nicole had 93 songs (127, 93)

7) Wendy is moving and has to pick a moving company. She found two companies that she could use to move her stuff. Peter's Pick Up charges \$0.40 per mile and charges a flat fee of \$68 for their services. Helen's Haulers charges \$0.65 per mile and charges a flat fee of \$23 for their services. At what distance are the two companies the same cost? What is the equal cost?

Define Variables

$x = \# \text{ of miles}$

$y = \text{total cost}$

Equation 1 → $y = 0.40x + 68$

Equation 2 → $y = 0.65x + 23$

Solution Interpretation → At 180 miles they both cost \$140

$$\begin{array}{r} 0.40x + 68 = 0.65x + 23 \\ -0.40x \qquad -0.40x \\ \hline \end{array}$$

$$\begin{array}{r} 68 = 0.25x + 23 \\ -23 \qquad -23 \\ \hline \end{array}$$

$$\begin{array}{r} 45 = 0.25x \\ \frac{45}{0.25} \qquad \frac{0.25x}{0.25} \end{array}$$

$$180 = x$$

$$y = 0.40(180) + 68$$

$$y = 72 + 68$$

$$y = 140$$

Solution

(180, 140)

9) The seventh and eighth grade bands held a joint concert. Together there were 188 band members. If the eighth grade band is 3 times as big as the seventh grade band, how big is the eighth grade band?

Define Variables

s = # of 7th graders

e = # of 8th graders

$$s + 3s = 188$$

$$\frac{4s}{4} = \frac{188}{4}$$

$$s = 47$$

$$e = 3(47)$$

$$e = 141$$

Equation 1 → $s + e = 188$

Equation 2 → $e = 3s$

Solution

Solution Interpretation → The 47 7th grade students, and 141 8th grade students (47, 141)

10) A medium cheese pizza at Palanzio's Pizzeria cost \$10.80 plus \$0.90 for each topping. The cost of a medium cheese pizza at George's Pizza is \$11.30 plus \$0.65 for each topping. How many toppings need to be added to a medium cheese pizza for the pizzas to cost the same at both restaurants? What is the equal cost of the pizzas?

Define Variables

n = number of toppings

C = cost

Equation 1 → $C = 0.90n + 10.80$

Equation 2 → $C = 0.65n + 11.30$

Solution Interpretation → Both pizzas cost \$12.60 after 2 toppings

$$\begin{array}{r} 0.90n + 10.80 = 0.65n + 11.30 \\ -0.65n \qquad \qquad -0.65n \\ \hline \end{array}$$

$$\begin{array}{r} 0.25n + 10.80 = 11.30 \\ -10.80 \qquad -10.80 \\ \hline \end{array}$$

$$\begin{array}{r} 0.25n = 0.5 \\ \hline 0.25 \qquad 0.25 \end{array}$$

$$n = 2$$

$$C = 0.65(2) + 11.30$$

$$C = 1.30 + 11.30$$

$$C = 12.6$$

Solution

(2 , 12.6)

11) During the months of August and September the total rainfall was 6.2 inches. If the rainfall in August was 0.6 inch more than the amount of rainfall in September, how much rain fell in each month?

Define Variables

a = inches of rain in Aug.

s = inches of rain in Sep.

Equation 1 → $a + s = 6.2$

Equation 2 → $a = s + 0.6$

Solution Interpretation → It rained 3.4 in. in August and 2.8 in. in September (2.8, 3.4)

$$s + 0.6 + s = 6.2 \quad a = 2.8 + 0.6$$

$$2s + 0.6 = 6.2 \quad a = 3.4$$

$$\begin{array}{r} -0.6 \quad -0.6 \\ \hline \end{array}$$

$$\frac{2s}{2} = \frac{5.6}{2}$$

$$s = 2.8$$

Solution

14) Write an example of a system of equations that has the following solutions. You don't need to solve the system of equations. Explain why your system will result in the given solution.

A) One Solution: Equation 1 \rightarrow $y = 2x - 3$ Equation 2 \rightarrow $y = 4x + 6$
Explanation \rightarrow The equations have a different slope

B) No Solutions: Equation 1 \rightarrow $y = 3x - 2$ Equation 2 \rightarrow $y = 3x + 1$
Explanation \rightarrow The equations have the same slope and different y-intercepts

C) Infinite Solutions: Equation 1 \rightarrow $y = 5x + 2$ Equation 2 \rightarrow $y = 5x + 2$
Explanation \rightarrow The equations are the same. They have the same slope and y-intercept