

**Solve.**

1.  $3(x - 2) = 15$

$$\begin{array}{r} 3x - 6 = 15 \\ +6 \quad +6 \\ \hline 3x = \frac{21}{3} \quad \boxed{x=7} \end{array}$$

3.  $\frac{2x}{3} - 1 = -3$

$$\begin{array}{r} \frac{2x}{3} - 1 = -3 \\ +1 \quad +1 \\ \hline \frac{2x}{3} = -2 \cdot 3 \\ \frac{2x}{2} = \frac{-6}{2} \quad \boxed{x=-3} \end{array}$$

2.  $-11x + 5 = -9x - 3$

$$\begin{array}{r} -11x + 5 = -9x - 3 \\ +11x \quad +11x \\ \hline 5 = 2x - 3 \\ +3 \quad +3 \\ \hline 8 = \frac{2x}{2} \quad \boxed{x=4} \end{array}$$

4.  $5x + 8 - 3x = 18$

$$\begin{array}{r} 5x + 8 - 3x = 18 \\ 2x + 8 = 18 \\ -8 \quad -8 \\ \hline 2x = \frac{10}{2} \quad \boxed{x=5} \end{array}$$

**Evaluate.**

5.  $-3xy - 2x + 8$  if  $x = -2$  and  $y = 4$

$$\begin{array}{l} -3(-2)(4) - 2(-2) + 8 \\ 6(4) + 4 + 8 \\ 24 + 4 + 8 \\ \boxed{36} \end{array}$$

6.  $-5(x + 3)^2 - 9x + 17$  if  $x = -4$

*PENDAS*

$$\begin{array}{l} -5(-4 + 3)^2 - 9(-4) + 17 \\ -5(-1)^2 - 9(-4) + 17 \\ -5(1) - 9(-4) + 17 \\ -5 + 36 + 17 = \boxed{48} \end{array}$$

7. Use the **expression**  $-4x^2 - 2xy + z$  to answer the following questions.a. How many terms does this expression have? **3**b. What is the coefficient of  $xy$ ? **-2**c. What is the coefficient of  $z$ ? **1****Simplify** the following expressions.

8.  $\underline{-6x + 8} - \underline{11y + 9x - 7} + \underline{3y}$

$$3x + 1 - 8y$$

9.  $-2(x - 1) + 3x - (4x - 11)$

$$\begin{array}{r} \underline{-2x + 2} + 3x - \underline{4x + 11} \\ -3x + 13 \end{array}$$

**Write expressions** for the following situations.

10. the total cost,  $c$ , of an item less an 25% discount

$$100c - 25c = 75c/100 \rightarrow \boxed{0.75c}$$

11. An hourly charge of \$33 plus a \$50 service fee

$$33h + 50$$

12. Sandra buys  $m$  muffins for \$2.50 each and  $b$  bagels for \$3.25 each

$$2.50m + 3.25b$$

**Solve** each formula for the given variable.

13.  $Q = 2p + R$  for  $p$

$$\begin{array}{r} -R \quad -R \\ \hline Q - R = 2p \\ \hline \frac{Q-R}{2} = \frac{2p}{2} \end{array} \quad \boxed{\frac{Q-R}{2} = p}$$

14.  $J = \frac{1}{3}gh$  for  $g$

$$\begin{array}{r} 3J = gh \\ \hline \frac{3J}{h} = \frac{gh}{h} \end{array} \quad \boxed{g = \frac{3J}{h}}$$

15.  $V = \frac{ab+c}{4}$  for  $c$

$$\begin{array}{r} 4V = ab + c \\ -ab \quad -ab \\ \hline 4V - ab = c \end{array} \quad \boxed{4V - ab = c}$$

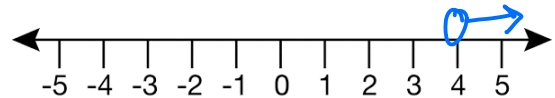
16.  $-5x + 4y = 16$  for  $y$

$$\begin{array}{r} +5x \quad +5x \\ \hline 4y = 5x + 16 \\ \hline \frac{4y}{4} = \frac{5x+16}{4} \end{array} \quad \boxed{y = \frac{5x+16}{4}}$$

**Solve** each inequality and **graph** its solution set.

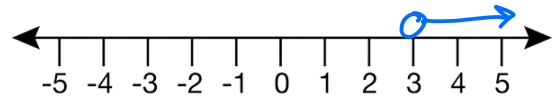
17.  $\frac{x}{2} + 5 > 7$

$$\begin{array}{r} -5 \quad -5 \\ \hline \frac{x}{2} > 2 \\ 2 \cdot \frac{x}{2} > 2 \cdot 2 \\ \hline \boxed{x > 4} \end{array}$$



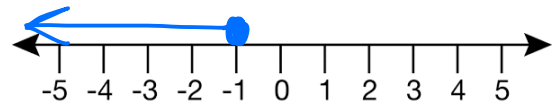
18.  $5x - 3 < 8x - 12$

$$\begin{array}{r} -5x \quad -5x \\ \hline -3 < 3x - 12 \\ +12 \quad +12 \\ \hline \frac{9}{3} < \frac{3x}{3} \\ \hline 3 < x \end{array} \quad \boxed{x > 3}$$

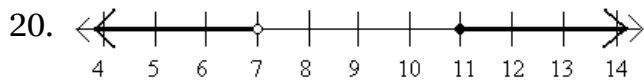


19.  $3(x + 2) - 4x \geq 7$

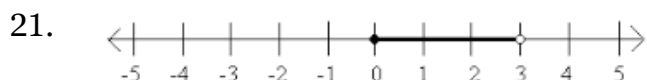
$$\begin{array}{r} 3x + 6 - 4x \geq 7 \\ -1x + 6 \geq 7 \\ -6 \quad -6 \\ \hline -1x \geq 1 \\ \hline \frac{-1x}{-1} \geq \frac{1}{-1} \end{array} \quad \rightarrow \quad \boxed{x \leq -1}$$



Write an inequality for each graph below.



$$x < 7 \text{ OR } x \geq 11$$



$$0 \leq x < 3$$

Solve each compound inequality.

22.  $-14 < 2x - 14 \leq 2$

$+14$	$+14$	$+14$
$0 < 2x$	$0 < 2x$	$16 \leq 2$
$\frac{0}{2}$	$\frac{2x}{2}$	$\frac{16}{2}$
$0 < x$	$x$	$\leq 8$

23.  $x - 1 > 11$  OR  $-3x > -21$

$+1$	$+1$	$-3$	$-3$
$x > 12$	OR	$x < 7$	

Use the **relation**  $\{(-7, 2), (-2, 5), (3, 11)\}$  to answer the following questions.

24. What is domain?

$$\{-7, -2, 3\}$$

25. What is the range?

$$\{2, 5, 11\}$$

26. Is this a function?

Yes

27. Determine if the situations would have a **discrete** graph or a **continuous** graph.

a. the amount of water in a hot water tank **continuous**

b. the number of shirts in someone's closet **discrete**

c. the number of people in line at the grocery store **discrete**

28. A local delivery driver is paid \$3.50 per mile plus \$75 a day.  $\rightarrow 3.50m + 75 = c$

a. Identify the independent and dependent variables.

Independent: miles

Dependent: amount earned

b. Write a function (in function notation) to model this situation.

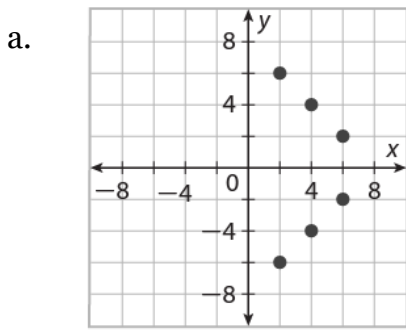
Function:  $f(m) = 3.50m + 75$

c. Use your function from part b to determine how much he would get paid for a delivery that's 30 miles away.

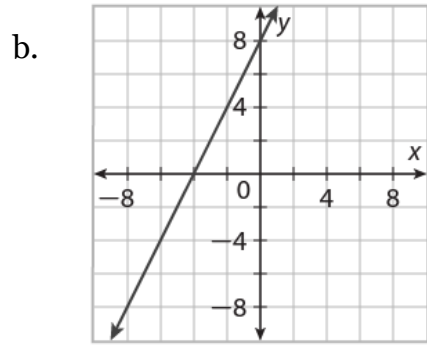
$$f(m) = 3.50(30) + 75$$

$f(m) = \$180$

29. Use the graph to determine if the relation graphed is a function.



No



Yes

30. Use the graph below to answer the questions.

A. Explain what is happening in part A.

water is filling

B. Explain what is happening in part B.

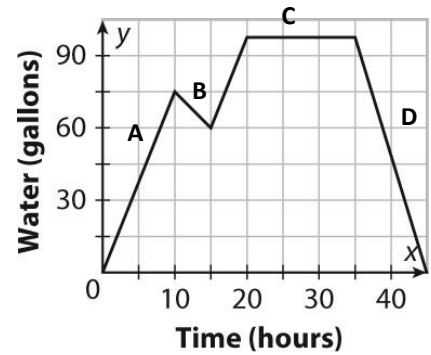
water is drained

C. Explain what is happening in part C.

No water being added/drained

D. Explain what is happening in part D.

water is being drained



31. Find the value of  $f(x)$  if  $x = -4$ .

a.  $f(x) = -x^2 + 3$

$f(-4) = -(-4)^2 + 3$   
 $- (16) + 3$   
 $f(-4) = -13$

b.  $f(x) = \frac{1}{4}x - 9$

$f(-4) = \frac{1}{4}(-4) - 9$   
 $-1 - 9$   
 $f(-4) = -10$

32. Determine if the function is linear or not linear.

a.  $2x - y = 4$

Linear

b.  $\frac{6}{x} + \frac{5}{y} = 17$

Not linear

c.  $2x + 5y^2 = 18$

Not linear

Determine if the following relations are a function.

33. 

x	y
5	4
6	3
8	4
11	5

Function

34. 

x	y
-11	-7
-9	-3
-11	2
-8	14

Not a function