

Warm Up

October 10, 2018

1.) A. Solve the inequality: $3 - (7 - 2x) > -8$.

B. List three numbers that make the inequality true

$$\begin{aligned} 3 - 7 + 2x &> -8 \\ -4 + 2x &> -8 \\ +4 \quad +4 & \\ \hline 2x &> -4 \\ \frac{2x}{2} &> \frac{-4}{2} \end{aligned}$$

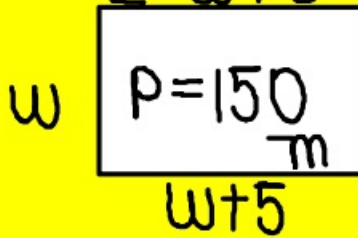
$$x > -2$$

$$0, -1, 1$$

$$\begin{aligned} 3 - (7 - 2(1)) &> -8 \\ 3 - (7 - 2) &> -8 \\ 3 - 5 &> -8 \\ -2 &> -8 \end{aligned}$$

2.) The length of a rectangle is 5 m greater than the width. The perimeter is 150 m. Find the width and length.

$$L = w + 5$$



$$w + w + 5 + w + w + 5 + w = 150$$

$$4w + 10 = 150$$

$$\begin{aligned} \frac{4w}{4} &= \frac{140}{4} \\ w &= 35 \end{aligned}$$

$$\begin{aligned} L &= w + 5 \\ L &= 35 + 5 \\ L &= 40 \end{aligned}$$

$$\begin{aligned} w &= 35\text{m} \\ L &= 40\text{m} \end{aligned}$$

3.) Solve for x: $Ax + By = C$.

$$\begin{aligned} Ax + By &= C \\ -By \quad -By & \\ \hline Ax &= -By + C \\ \frac{Ax}{A} &= \frac{-By + C}{A} \end{aligned}$$

$$x = \frac{-By + C}{A}$$

$$-5(x-6) \leq -3(x+7)+x$$

$$-5x+30 \leq -3x-21+x$$

$$\begin{array}{r} -5x+30 \leq -2x-21 \\ +5x \qquad +5x \end{array}$$

$$\begin{array}{r} 30 \leq 3x-21 \\ +21 \qquad +21 \end{array}$$

$$\frac{51}{3} \leq \frac{3x}{3}$$

$$17 \leq x$$

$$x \geq 17$$

FLIP

$$\begin{array}{r} -2x+4 \leq 6 \\ -4 \quad -4 \end{array}$$

$$\begin{array}{r} -2x \leq 2 \\ \div -2 \quad \div -2 \end{array}$$

$$x \geq -1$$

Key Words

$<$ (less than)	$=$ (equal)	$>$ (greater than)
is less than	is / are / will be /only	more than
is under	is the same as	above
is below	that is equal to	over
shorter / smaller than	exactly	greater / larger than
fewer than	half (= .5* or $\frac{1}{2}$ *)	exceeds / increased
is lower than		longer than
beneath		is higher than
a better deal		

\leq (less than or equal to)	\neq (not equal to)	\geq (greater than or equal to)
at most	is not equal to	at least
maximum	is not the same as	minimum
bottom	is different / differs from	top
is no more than		is no less than

Translate the verbal phrases into inequalities.

1.) x is **at most** 6 $x \leq 6$

2.) ~~You~~ must be **at least** 25 years old to rent a car.
 $x \geq 25$

3.) a number that is **at least** 90 $p \geq 90$

4.) a number that is **at most** 30 $q \leq 30$

1.) Katie had 38 recipes for desserts in her file box before adding x new recipes. If she now has at least 50 recipes, which inequality could be used to determine the number of new recipes she added to her files?

A. $x + 50 \geq 38$

$$38 + x \geq 50$$

C. $x > 50 + 38$

B. $x + 38 \geq 50$

D. $x + 38 \leq 50$

2.) Juanita wants to buy several cans of beans that sell for \$1.29 per can and a loaf of bread that costs \$1.40. Juanita only has a twenty-dollar bill. Which inequality could she use to find out how many cans x she is able to purchase?

~~A. $1.40x + 1.29 > 20$~~

~~C. $20x + 1.40 \leq 20$~~

B. $1.29x + 1.40 \geq 20$

D. $1.29x + 1.40 \leq 20$

Write and solve the inequalities for the scenarios below.

1. + The charge to rent a car for a day is \$16. There is an additional charge of \$0.12 per mile. What is the **greatest** number of miles that a rented car can be driven in a day if the total bill is to be less than \$40?

A. 149 miles

C. 190 miles

B. 160 miles

D. 199 miles

$$.12m + 16 < 40$$

$$\begin{array}{r} .12m + 16 < 40 \\ -16 \quad -16 \\ \hline .12m < 24 \end{array}$$

$$\begin{array}{r} .12m < 24 \\ \cdot 12 \quad \cdot 12 \\ \hline m < 200 \end{array}$$

$$m < 200$$

2.) The cost to print a book is \$54. The paper is an additional charge of \$0.05 per page. What is the greatest number of pages that a book can be printed if the total bill is to be less than \$60?

A. 1200 pages p = pages C. 60 pages
 B. 120 pages $.05p + 54 < 60$
 $-54 \quad -54$ D. 1080 pages

 $.05p < 6$
 $.05 \quad .05$
 $p < 120$

3.) Mrs. Smith wrote "Eight less than three times a number is greater than fifteen" on the board. If x represents the number, which inequality is a correct translation of this statement?

a) $3x - 8 > 15$

b) $3x - 8 < 15$

~~c) $8 - 3x > 15$~~

~~d) $8 - 3x < 15$~~

less than



$3x - 8 > 15$

is less than
 $<$

4.) ~~Joan needed \$100 to buy a graphing calculator for her math class. Her neighbor will pay her \$5 per hour to babysit and her father gave her \$10 for cleaning her room.~~ What is the minimum amount of hours she will need to babysit in order for her to buy her calculator?

$$5h + 10 \geq 100$$

$$\begin{array}{r} -10 \quad -10 \\ \hline 5h \geq 90 \end{array}$$

$$\begin{array}{r} 5h \geq 90 \\ \hline 5 \quad 5 \end{array}$$

$$h \geq 18$$

$h =$ hours

at least
18 hours

5.) A school club sells candy bars for a fundraiser. If the club makes a profit of 25¢ on each candy bar and spends \$25 on advertising, how many candy bars must be sold to make a profit of **at least** \$100?