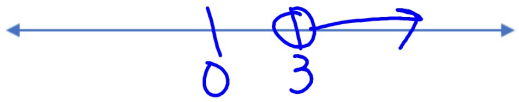
Solve each inequality and graph your solution.

1.) $4k - 4 - 3k > 13 - 7k - 1 + 8$

$1k - 4 > -7k + 20$

$8k > 24$

$k > 3$



2.) $5n + 7(-6 - n) > 4(n + 3)$

$5n - 42 \quad -7n > 4n + 12$

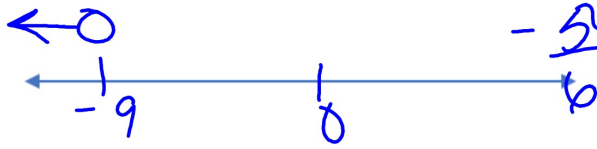
$-2n - 42 > 4n + 12$

$-42 > 6n + 12$

$-54 > 6n$

$\frac{-54}{6} > \frac{6n}{6}$

$n < -9$



Write an inequality for the following statements.

3.) There are at least 20 students in class.

$x \geq 20$

4.) The truck can hold up to 100 bricks.

$X \leq 100$

5.) The area of a triangle is: $A = \frac{1}{2}bh$

The base of a triangle is 10 inches. Its height is $(x + 4)$ inches. Its area is no more than 56 in^2. What are the possible integer values of x?

$\frac{1}{2}(10)(x+4) \leq 56$

$5(x+4) \leq 56$

$5x + 20 \leq 56$

$5x \leq 36$

$x \leq 7.2$

Story Problems with Inequalities...

1. Ernest works in the shipping department loading shipping crates with boxes. Each empty crate weighs 150 lb. How many boxes, each weighing 35 lb, can Ernest put in the crate if the total weight is to be no more than 850 lb?

b = boxes

$150 + 35b \leq 850$

$35b \leq 700$

$b \leq 20$ boxes

2. Suppose it costs $5 to enter a carnival. Each ride costs $1.25. You have $15 to spend at the carnival. What is the greatest number of rides that you can go on?

r = rides

$1.25r + 5 \leq 15$

$1.25r \leq 10$

$r \leq 8$

3. The cost to rent a car is $19.50 plus $.25 per mile. If you have $44 to rent a car, what is the greatest number of miles that you can drive?

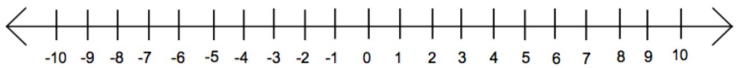
$.25m + 19.50 \leq 44$

$.25m \leq 24.5$

$m \leq 98$ $m = m_1$

Where could you be located if you are 7 units from zero?

You could be 7 units to the right



You could also be 7 units to the left.

Section 3.6:

Today's Objectives --

- I can solve equations that involve absolute value.

Recall:

- The absolute value of a number is its distance from zero on a number line. Since absolute value represents distance, it can never be negative.

What are the possible values for x that make this statement true?

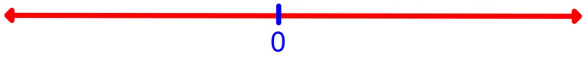
$$|x| = 13$$

because |-13| and |13| both equal 13.

Absolute Value: Distance from zero on a number line.

$|x| = 13$

Where are you on a number line if you are exactly 13 units from zero?



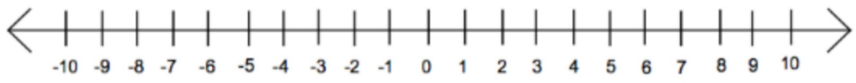
You could be 13 units to the left of zero (-13)
or 13 units to the right of zero (+13)

Rule **Solving Absolute Equations**

To solve an equation in the form $|A| = b$, where A represents a variable expression and $b > 0$, solve $A = b$ and $A = -b$.

1.) Solve: $|x| = 9$ x is exactly 9 units from zero.

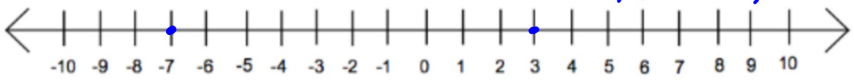
$x = 9$ or -9



2.) Solve: $|x + 2| = 5$ x + 2 is exactly 5 units from zero.

$x + 2 = 5$ $x + 2 = -5$

$x = 3$ $x = -7$



3.) Solve: $|x - 3| = 6$ x - 3 is exactly 6 units from zero.

$x - 3 = 6$ $x - 3 = -6$

$x = 9$ $x = -3$

4.) Solve: $|2x + 1| = 13$

$2x+1=13$ $\quad 2x+1=-13$

$2x=12$ $\quad 2x=-14$

$x=6$ $\quad x=-7$

5.) Solve: $|x - 2| + 7 = 15$

$-7 \quad -7$

$|x-2|=8$

$x-2=8$ $\quad x-2=-8$

$x=10$ $\quad x=-6$

6.) Solve: $|x - 5| + 18 = 8$

$-18 \quad -18$

$|x-5|=-10$

$\emptyset$

7.) Solve: $\frac{-3|8x|}{-3} = \frac{-30}{-3}$

$|8x|=10$

$8x=10$ $\quad 8x=-10$

$x=1.25$ $\quad x=-1.25$

$\frac{10}{8}$

8.) Solve: $4|x + 3| - 9 = 23$

$4|x+3| = 32$

$|x+3| = 8$

$x+3 = 8$ or $x+3 = -8$

$x = 5$ or $x = -11$

9.) Solve: $-2|x + 1| - 10 = 6$

$+10 \quad +10$

$-2|x+1| = 16$

$\frac{-2|x+1|}{-2} = \frac{16}{-2}$

$|x+1| = -8$

$\varnothing$

10.) Solve: $6|2.5x| = 30$

$2.5x = 5$

$x = 2$

$2.5x = -5$

$x = -2$

HW #23 - due Monday!

Section 3.6

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Problems: 16-21, 22, 49

IXL #8 - K.3 & K.4 due today by 6pm!