

$$1.) \leq(-2) \leq \left(\frac{x}{5}\right)^5 \leq (-1)^5$$

$$5 > 1$$

$$-10 \leq x \leq -5$$

$$-5 < -1$$

$$-10 \leq x \quad x \leq -5$$



$$2.) \begin{array}{ccc} -38 & \leq & -4x + 2 & \leq & -26 \\ -2 & & -2 & & -2 \end{array}$$

$$\begin{array}{ccc} -40 & \leq & -4x & \leq & -28 \\ \frac{-40}{-4} & & \frac{-4x}{-4} & & \frac{-28}{-4} \end{array}$$

$$10 \geq x \geq 7$$

$$10 \geq x$$

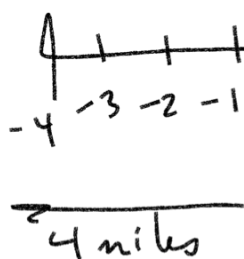
$$x \geq 7$$



Absolute Value - Distance from a number to zero on the number line



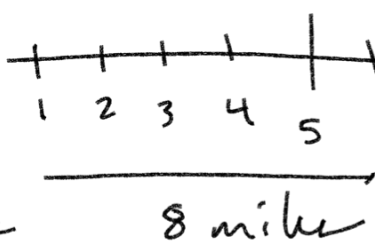
Beach House



$$|-4| = 4$$



Elijah's House



$$|8| = 8$$



Food Lion

$$|-4| = 4$$

$$-|-4| = -4$$



$$|x| = 3$$

Arrows point from the number 3 to the left and right sides of the absolute value bars.

$$|x| = 3$$

Arrows point from the absolute value bars to the solutions $x = 3$ and $x = -3$.

$$|x| + 5 = 9$$

-5 is written below both $|x|$ and 9 .

Isolate absolute value first!!

$$|x| = 4$$

$$x = 4$$

$$x = -4$$

4, -4

$$|x| - 8 = 13$$

$+8$ is written below both $|x|$ and 13 .

$$|x| = 21$$

$$x = 21$$

$$x = -21$$

$$|x| + 6 = 4$$

-6 -6

$$|x| = -2$$

No Solution "ns"

1.) Isolate absolute value.

2.) Check for negative.

If negative, ns

3.) Make \oplus or \ominus

$$\frac{-4|x|}{-4} = \frac{-3}{-4}$$

$$|x| = \frac{3}{4}$$

$$x = \frac{3}{4}$$

$$x = -\frac{3}{4}$$

$$|x-2| + 6 = 15$$

-6 -6

$$|x-2| = 9$$

$$x-2 = 9$$

+2 +2

$$\boxed{x = 11}$$

$$x-2 = -9$$

+2 +2

$$\boxed{x = -7}$$

$$1.) |x+9| = 12$$

$$\begin{array}{r} x+9 = 12 \\ -9 \quad -9 \end{array}$$

$$\boxed{x = 3}$$

$$\begin{array}{r} x+9 = -12 \\ -9 \quad -9 \end{array}$$

$$\boxed{x = -21}$$

$$2.) |x-1| = \downarrow -7$$

No solution

$$3.) {}^3\left(\frac{|x|}{3}\right) = (8)^3$$

$$|x| = 24$$

$$\boxed{x = 24} \quad \boxed{x = -24}$$

$$4.) |x-2| + 8 = 14$$

$$|x-2| = 6$$

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

$$\boxed{x = 8}$$

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

$$\boxed{x = -4}$$