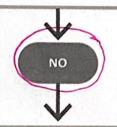


STEP 2: Is the absolute value equal to a negative number?



YES

#### Isolate the absolute value.

Rewrite the equation so that the absolute value is completely isolated (all by itself).

$$2|3x-4|-8=6$$
 $+8+8$ 
 $2|3x-4|=14$ 

### STEP 3:

Split your isolated absolute value equation into two regular equations by taking the inside of the absolute value and setting it equal to the positive and negative version of the other side of the equation.

$$3x - 4 = -7$$

An absolute value is always great than or equal to zero, therefore it can never equal a negative number!

There is NO solution to this equation! We write:



This is called the "Empty Set." It is a solution set that contains no solutions!



### STEP 4: Solve both equations.

$$\frac{3x = 11}{3}$$

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

#### STEP 5:

Check to see if any of your solutions are extraneous. Write your solution(s) in a solution set of the form  $x = \{,\}$ .

$$2|3(\frac{1}{3})-4|-8=6$$

$$2|3(-1)-4|-8=6$$

$$2|11-4|-8=6$$

$$2|-3-4|-8=6$$

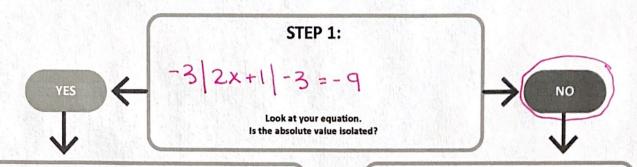
$$2|7|-8=6$$

$$2(-7)-8=6$$

$$14-8=6$$

$$14-8=6$$

$$6=6$$



Is the absolute value equal to a negative number?

NO YES Isolate the absolute value.

Rewrite the equation so that the absolute value is completely isolated (all by itself).

$$\begin{array}{r}
-3|2x+1|-3=-9\\ +3+3\\ \hline
-3|2x+1|=-6\\ \hline
-3\\ 2x+1|=2
\end{array}$$

### STEP 3:

Split your isolated absolute value equation into two regular equations by taking the inside of the absolute value and setting it equal to the positive and negative version of the other side of the equation.

$$2x+1=2$$
  $2x+1=-2$ 

An absolute value is always great than or equal to zero, therefore it can never equal a negative number!

There is NO solution to this equation! We write:



This is called the "Empty Set." It is a solution set that contains no solutions!



#### STEP 4: Solve both equations.

$$\begin{array}{r}
 2x + 1 = 2 \\
 -1 & -1 \\
 \hline
 2x = \frac{1}{2} \\
 x = \frac{1}{2}
 \end{array}$$

#### STEP 5:

Check to see if any of your solutions are extraneous. Write your solution(s) in a solution set of the form  $x = \{,\}$ .

your solution(s) in a solution set of the form 
$$x = (,)$$
.

$$-3 | 2(\frac{1}{2}) + 1| - 3 = -9$$

$$-3 | 1 + 1| - 3 = -9$$

$$-3 | 2| - 3 = -9$$

$$-3(2) - 3 = -9$$

$$-6 - 3 = -9$$

$$-9 = -9$$