

5 Minute Check

Solve

1. $|x + 10| = 12$

2. $2|2x + 1| = -10$

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

5-min check

5 Minute Check

Solve

1. $|x + 10| = 12$

$$x + 10 = 12 \text{ or } x + 10 = -12$$

$$x = 2 \text{ or } x = -22$$

2. $2|2x + 1| = -10$

$$|2x + 1| = -5 \quad \text{no solution}$$

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

$$5x - 10 = 2x + 11 \text{ or } 5x - 10 = -2x - 11$$

$$3x = 21 \text{ or } 7x = -1$$

$$x = 7 \text{ or } x = -\frac{1}{7}$$

Check:

$$5|7 - 2| = 2(7) + 11$$

$$5 \cdot 5 = 14 + 11$$

$$5\left(-\frac{1}{7}\right) = -\frac{2}{7} + 11$$

$$\frac{75}{7} = \frac{75}{7}$$

5-min check solutions

1-6 Solving Inequalities

Objective:

Be able to solve and graph Algebraic Inequalities

1-6

Remember:

$6 > 2$ six is greater than two

$2 < 6$ two is less than six

Rules of equations apply most of the time:

$$2 \cdot 6 > 2 \cdot 2 \quad 12 > 4$$

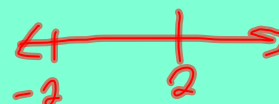
$$6/2 > 2/2 \quad 3 > 1$$

$$6+3 > 2+3 \quad 9 > 5$$

$$6-2 > 2-2 \quad 4 > 0$$

$$??? \quad 6 \cdot -2 > 2 \cdot -2 \quad -12 > -4 \quad \text{No}$$

There is a problem with negatives!

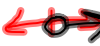

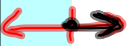




rules to remember

When you multiply or divide by a negative
flip the symbol.
(The rest of the time it's just like an equation)

important

Symbols:

	Meaning	Graph
$>$	Greater than 	Open circle/ shade right
$<$	Less than 	Open circle/ shade left
\geq	Greater or Equal 	Closed circle/ shade right
\leq	Less or equal to 	Closed circle/ shade left
\neq	Not equal to 	Open circle/ shade both

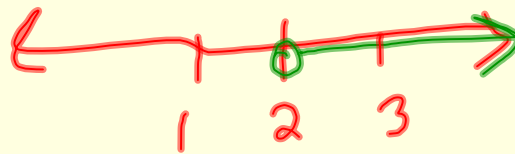
meaning

Set notation:

$$\{x \mid x > 2\}$$

Read: all x's such that x is greater than 2

$$\{x \in \mathbb{R} \mid x > 2\}$$



set notation

Example 1:

Solve & Graph the solution to:

$$3x+3 > 5x+5$$

$$\begin{array}{r} -3x \quad -3x \\ 3 > 2x+5 \\ -5 \quad -5 \end{array}$$

$$\frac{-2}{2} > \frac{2x}{2}$$

$$-1 > x$$

$$x < -1$$

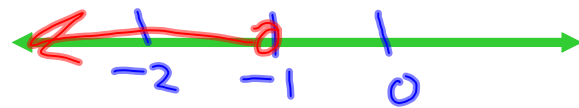
$$\begin{array}{r} 3x+3 > 5x+5 \\ -5x \quad -5x \end{array}$$

$$-2x+3 > 5$$

$$\begin{array}{r} + 3 \\ - 3 \end{array}$$

$$\begin{array}{r} -2x > 2 \\ \underline{-2} \quad \underline{-2} \end{array}$$

$$x < -1$$



ex 1

Example 2:

Solve and graph:

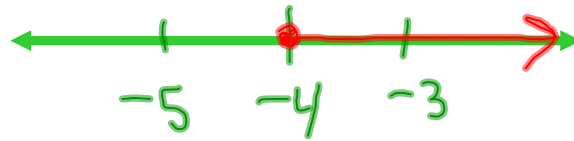
$$\frac{3y}{4} + 6 \geq 3$$

$$-6 \quad -6$$

$$4 \cdot \frac{3y}{4} \geq -3 \cdot 4$$

$$3y \geq -12$$

$$y \geq -4$$



ex 2

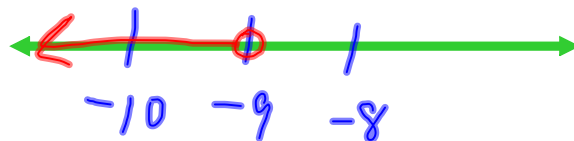
Example 3: Solve and Graph:

$$-3x + 1 > 28$$

$$-1 \quad -1$$

$$\frac{-3x > 27}{-3 \quad -3}$$

$$x < -9$$



ex 3

Assignment:

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assignment