

## CHAPTER 6 SECTION 2

Solving Multi Step Inequalities

# Inequality symbols

- Used to compare 2 non-equal values

- Symbol

- $<$

- $>$

- $\leq$

- $\geq$

- Read as

- **“ is less than”**

- **“ is greater than”**

- **“ is less than or equal to”**

- **“ is greater than or equal to”**

# Solving Inequalities

- Steps for solving:
  - Perform opposite ~~information~~ **operation** to solve for the variable
  - If you multiply or divide by a negative number, you must **FLIP** the inequality sign
  - Graph the solution on a number line

## Examples:

□ 1.  $4x + 2 > 8$

$$\frac{4x}{4} > \frac{6}{4}$$

$$x > 1.5$$



□ 2.  $2x - 1 < 3$

$$\frac{2x}{2} < \frac{4}{2}$$

$$x < 2$$



## Examples:

□ 3.  $-2x + 2 \leq 8$

$$\frac{-2x}{-2} \leq \frac{6}{-2}$$

$$x \geq -3$$



□ 4.  $-3x - 3 \geq -9$

$$\frac{-3x}{-3} \geq \frac{-6}{-3}$$

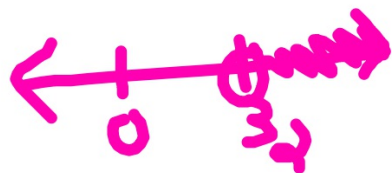
$$x \leq 2$$



## Examples

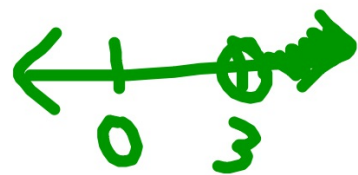
5.  $\frac{x}{4} - 1 > 7$

$\frac{x}{4} - 1 + 1 > 7 + 1$   
 $\frac{x}{4} > 8$   
 $x > 32$



6.  $\frac{x}{-3} + 2 < 1$

$\frac{x}{-3} + 2 - 2 < 1 - 2$   
 $\frac{x}{-3} < -1$   
 $x > 3$



## Examples

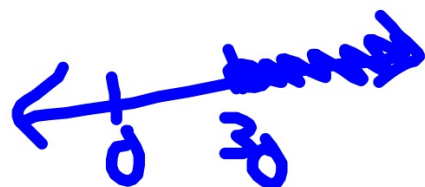
7.  $\frac{x}{-5} + 2 \leq 4$

$\begin{array}{l} -2 \quad -2 \\ \hline \frac{x}{-5} \leq 2 \cdot -5 \\ x \geq -10 \end{array}$



8.  $\frac{x}{3} - 4 \geq 6$

$\begin{array}{l} +4 \quad +4 \\ \hline \frac{x}{3} \geq 10 \cdot 3 \\ x \geq 30 \end{array}$



## On your own

9.  $\frac{x}{5} - 1 > 3$

$5. \frac{x}{5} > 4.5$

$x > 22.5$

11.  $\frac{x}{-3} + 2 \leq 1$

$x \leq -3$

$x \geq 3$

$x \geq 3$

10.  $3x - 4 > 11$

$3x > 15$

$x > 5$

12.  $-2x - 5 \leq 9$

$-2x \leq 14$

$x \geq -7$

$x \geq -7$

## Class Work

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- Blue Book pg 175 # 1-12

# Homework

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□ Page 343 # 5-12