





Chapter 2 - Inequalities

Graph

less than	$<$	
greater than	$>$	
less than or equal to	\leq	
greater than or equal to	\geq	

$$m \geq 4.5$$



$$\frac{3p}{3} \leq \frac{81}{3}$$

$$p \leq 27$$



* When you \times or \div by a negative #, you MUST flip the sign.

$$3 < -2(x+4) + 3$$

$$3 < -2x + -8 + 3$$

$$\begin{array}{r} 3 < -2x + -5 \\ +5 \qquad \qquad +5 \end{array}$$

$$\frac{8}{-2} < \frac{-2x}{-2}$$

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



$$8 < 3x - 1 \leq 11$$

+1 +1 +1

$$\frac{9}{3} < \frac{3x}{3} \leq \frac{12}{3}$$

$$3 < x \leq 4$$



$$\frac{3x}{3} \geq \frac{21}{3} \quad \text{OR} \quad \frac{-2x}{-2} > \frac{10}{-2}$$

$$x \geq 7 \quad \text{OR} \quad x < -5$$



COMPOUND:

- AND

*one inequality written together

- OR

*separated by "OR"

(graph like 2 separate inequalities)

$$-6m - 2 \geq \underline{4m} - 2 - \underline{10m}$$

$$\cancel{-6m} - 2 \geq \cancel{4m} - 2 - \cancel{10m}$$

$$-2 \geq -2$$

↑ true

infinitely many solutions

$$5(y-1) \geq 5y + 7$$

$$\cancel{5y} - 5 \geq \cancel{5y} + 7$$

$$-5 \geq 7$$



false

No Solution

$$3 \cdot 11 > \frac{3-6n}{3} \cdot 3$$

$$\begin{array}{r} 33 > 3-6n \\ -3 & -3 \end{array}$$

$$\begin{array}{r} 30 > -6n \\ -6 & -6 \end{array}$$

$$\boxed{-5 < n}$$

