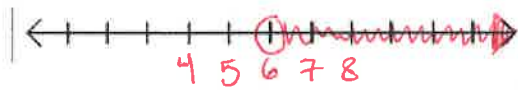


MULTI-STEP INEQUALITIES **Special Cases**

1. $6x - 7 > 2x + 17$

$$\begin{array}{r} -2x \quad -2x \\ \hline 4x - 7 > 17 \\ +7 \quad +7 \\ \hline 4x > 24 \\ \frac{4x}{4} > \frac{24}{4} \\ \boxed{x > 6} \end{array}$$



3. $9x + 6 \leq 6x + 21$

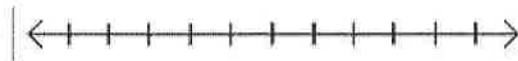
$$\begin{array}{r} -6x \quad -6x \\ \hline 3x + 6 \leq 21 \\ -6 \quad -6 \\ \hline 3x \leq 15 \\ \frac{3x}{3} \leq \frac{15}{3} \\ \boxed{x \leq 5} \end{array}$$



2. $14x + 5 < 7(2x - 3)$

$$\begin{array}{r} 14x + 5 < 14x - 21 \\ -14x \quad -14x \\ \hline 5 < -21 \\ \text{False} \\ \boxed{\emptyset} \end{array}$$

Leave blank!



4. $12x - 1 > 6(2x - 1)$

$$\begin{array}{r} 12x - 1 > 12x - 6 \\ -12x \quad -12x \\ \hline -1 > -6 \\ \text{True} \\ \boxed{TR} \end{array}$$



5. $8x - 4 \geq 4(2x - 1)$

$$\begin{array}{r} 8x - 4 \geq 8x - 4 \\ -8x \quad -8x \\ \hline -4 \geq -4 \\ \text{True} \\ \boxed{TR} \end{array}$$



6. $-2x + 9 < -2(x - 3)$

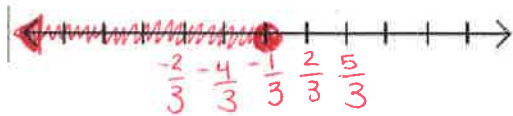
$$\begin{array}{r} -2x + 9 < -2x + 6 \\ +2x \quad +2x \\ \hline 9 < 6 \\ \text{False} \\ \boxed{\emptyset} \end{array}$$

Leave blank!



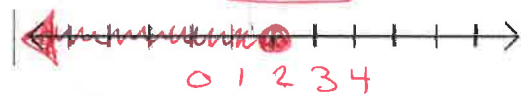
7. $2x + 6 - 4x \geq 8 + 4x$

$$\begin{array}{r} -2x + 6 \geq 4x + 8 \\ -4x \quad -4x \\ \hline -6x + 6 \geq 8 \\ -6 \quad -6 \\ \hline -6x \geq 2 \\ -6 \quad -6 \\ \hline x \leq -\frac{1}{3} \end{array}$$



8. $3 + 3x - 5 \leq 8 - 2x$

$$\begin{array}{r} 3x - 2 \leq 8 - 2x \\ +2x \quad +2x \\ \hline 5x - 2 \leq 8 \\ +2 \quad +2 \\ \hline 5x \leq 10 \\ \frac{5x}{5} \leq \frac{10}{5} \\ \boxed{x \leq 2} \end{array}$$



Example 2: Write and solve the inequality for each statement.

a.) 2 more than twice a number is less than 10

$$\begin{array}{r} 2x + 2 < 10 \\ -2 \quad -2 \\ \hline 2x < 8 \\ \frac{2x}{2} < \frac{8}{2} \\ \boxed{x < 4} \end{array}$$

b.) 4 less than 3 times a number is greater than 14

$$\begin{array}{r} 3x - 4 > 14 \\ +4 \quad +4 \\ \hline 3x > 18 \\ \frac{3x}{3} > \frac{18}{3} \\ \boxed{x > 6} \end{array}$$

Classwork: Complete the following problems. Be sure to show BEFORE YOU LEAVE!!!

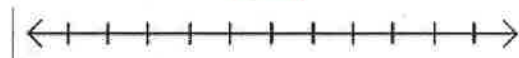
1. $5x - 12 \leq 3x - 4$

$$\begin{array}{r} -3x \quad -3x \\ \hline 2x - 12 \leq -4 \\ +12 \quad +12 \\ \hline 2x \leq 8 \\ \frac{2x}{2} \leq \frac{8}{2} \\ \boxed{x \leq 4} \end{array}$$



3. $5(m + 5) < 5m + 17$

$$\begin{array}{r} 5m + 25 < 5m + 17 \\ -5m \quad -5m \\ \hline 25 < 17 \\ \text{False} \\ \boxed{\emptyset} \end{array}$$



2. $1 - 8s < -4(2s - 1)$

$$\begin{array}{r} 1 - 8s < -8s + 4 \\ +8s \quad +8s \\ \hline 1 < 4 \\ \text{TRUE} \\ \boxed{TR} \end{array}$$



4. $3x + 7 < -2x + 2$

$$\begin{array}{r} +2x \quad +2x \\ \hline 5x + 7 < 2 \\ -7 \quad -7 \\ \hline 5x < -5 \\ \frac{5x}{5} < \frac{-5}{5} \\ \boxed{x < -1} \end{array}$$

