

Chapter 6 § 3

Solving Multi-Step Inequalities

Note:

The strategy to use on solving multi-step inequalities, is to work backwards from the order of operations.

↑
p
e
m d
a s

$$\begin{array}{r} -5x + 7 \leq 52 \\ - 7 \quad - 7 \\ \hline -5x + 0 \leq 45 \\ \hline -5 \qquad \qquad -5 \\ \hline X \geq -9 \end{array}$$

$$4a - 5 < 15$$

$$4a + (-5) < 15$$

$$\begin{array}{r} 5 \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} 4a + 0 < 20 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \quad 4 \\ \hline \end{array}$$

$$a < 5$$

Yo' Turn

$$5z + 16 \geq 51$$

$$\begin{array}{r} -16 \quad -16 \\ \hline \end{array}$$

$$\begin{array}{r} 5z + 0 \geq 35 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \quad 5 \\ \hline \end{array}$$

$$z \geq 7$$

Let's Add Some Flavor

$$\frac{x}{5} + 9 > 6$$

$$\quad \quad -9 \quad -9$$

$$\frac{x}{5} + 0 > -3$$

$$5 \left(\frac{x}{5} \right) > (-3) \cdot 5$$

$$x > -15$$

$$\frac{m}{-5} - 6 \leq 32$$

$$\frac{m}{-5} + (-6) \leq 32$$

$$\quad \quad 6 \quad 6$$

$$\frac{m}{-5} + 0 \leq 38$$

$$-5 \left(\frac{m}{-5} \right) \leq (38) \cdot (-5)$$

$$m \geq -190$$

$$-\frac{x}{11} - 13 > 61$$

$$-\frac{x}{11} + (-13) > 61$$

$$13 \quad 13$$

$$-\frac{x}{11} + 0 > 74$$

$$-11 \left(\frac{-x}{-11} \right) > (74) -11$$

$$x < -814$$

$$\frac{g + (-7)}{-5} > -33$$

$$^{-5} \left(\frac{g + (-7)}{-5} \right) > (-33)^{-5}$$

$$\frac{g + (-7)}{7} < \frac{165}{7}$$

$$g + 0 < 172$$

$$g < 172$$