

Name: _____

Solving Two-Step Inequalities

Solving inequalities follows the same procedure as solving equations **except** when multiplying or dividing by a negative integer, the inequality symbol flips.

example: $5x > 8x + 27$

$$\begin{array}{r} -8x \\ \hline -3x > 27 \end{array}$$

$$\begin{array}{r} -3x > 27 \\ \hline -3 \quad -3 \end{array}$$

$$x < -9$$

$4x + 3 < -1$
$$\begin{array}{r} -3 \\ \hline 4x < -4 \end{array}$$

$$\begin{array}{r} 4x < -4 \\ \hline 4 \quad 4 \end{array}$$

$$x < -1$$

Solve each inequality below.

1. $5y - 3 > -18$

2. $3x + 11 \geq 5$

3. $-4b - 4 < 8$

4. $-3a + 5 \leq -16$

Solving Two-Step Inequalities

5. $6x - 19 > 5$

6. $-9y - 11 \leq 16$

7. $-5c - 7 \geq 8$

8. $4a + 12 > -8$

9. $2x - 5 \geq 7$

10. $9y - 3 > 6$

ANSWER KEY

Solving Two-Step Inequalities

1. $5y - 3 > -18$

$$\begin{array}{r} +3 \quad +3 \\ \hline 5y > -15 \\ \hline \frac{5y}{5} > \frac{-15}{5} \end{array}$$

$y > -3$

2. $3x + 11 \geq 5$

$$\begin{array}{r} -11 \quad -11 \\ \hline 3x \geq -6 \\ \hline \frac{3x}{3} \geq \frac{-6}{3} \end{array}$$

$x \geq -2$

3. $-4b - 4 < 8$

$$\begin{array}{r} +4 \quad +4 \\ \hline -4b < 12 \\ \hline \frac{-4b}{-4} < \frac{12}{-4} \end{array}$$

$b > -3$

4. $-3a + 5 \leq -16$

$$\begin{array}{r} -5 \quad -5 \\ \hline -3a \leq -21 \\ \hline \frac{-3a}{-3} \leq \frac{-21}{-3} \end{array}$$

$a \geq 7$

5. $6x - 19 > 5$

$$\begin{array}{r} +19 \quad +19 \\ \hline 6x > 24 \\ \hline \frac{6x}{6} > \frac{24}{6} \end{array}$$

$x > 4$

6. $-9y - 11 \leq 16$

$$\begin{array}{r} +11 \quad +11 \\ \hline -9y \leq 27 \\ \hline \frac{-9y}{-9} \leq \frac{27}{-9} \end{array}$$

$y \geq -3$

7. $-5c - 7 \geq 8$

$$\begin{array}{r} +7 \quad +7 \\ \hline -5c \geq 15 \\ \hline \frac{-5c}{-5} \geq \frac{15}{-5} \end{array}$$

$c \leq -3$

8. $4a + 12 > -8$

$$\begin{array}{r} -12 \quad -12 \\ \hline 4a > -20 \\ \hline \frac{4a}{4} > \frac{-20}{4} \end{array}$$

$a > -5$

9. $2x - 5 \geq 7$

$$\begin{array}{r} +5 \quad +5 \\ \hline 2x \geq 12 \\ \hline \frac{2x}{2} \geq \frac{12}{2} \end{array}$$

$x \geq 6$

10. $9y - 3 > 6$

$$\begin{array}{r} +3 \quad +3 \\ \hline 9y > 9 \\ \hline \frac{9y}{9} > \frac{9}{9} \end{array}$$

$y > 1$