

Answer key

Solve each inequality.

1) $2x + 5 > 13$
 $\begin{array}{r} -5 \quad -5 \\ 2x > 8 \\ \hline x > 4 \end{array}$

$x > 4$

2) $\frac{x-4}{3} \leq 5$ (3)

$\begin{array}{r} x-4 \leq 15 \\ +4 \quad +4 \\ x \leq 19 \end{array}$

$x \leq 19$

3) $5x - 7 \geq 8$
 $\begin{array}{r} +7 \quad +7 \\ 5x \geq 15 \\ \hline x \geq 3 \end{array}$

$x \geq 3$

4) $\frac{x}{2} + 4 < 7$
 $\begin{array}{r} -4 \quad -4 \\ \frac{x}{2} < 3 \end{array}$

$2(\frac{x}{2}) < 3(2)$
 $x < 6$

$x < 6$

5) $9x - 3 > 6$
 $\begin{array}{r} +3 \quad +3 \\ 9x > 9 \\ \hline x > 1 \end{array}$

$x > 1$

6) $11 + 3x \leq 17$
 $\begin{array}{r} -11 \quad -11 \\ 3x \leq 6 \\ \hline x \leq 2 \end{array}$

$x \leq 2$

7) $4x - 12 \geq 8$
 $\begin{array}{r} +12 \quad +12 \\ 4x \geq 20 \\ \hline x \geq 5 \end{array}$

$x \geq 5$

8) $3x + 7 < 9$
 $\begin{array}{r} -7 \quad -7 \\ 3x < 2 \\ \hline x < \frac{2}{3} \end{array}$

$x < \frac{2}{3}$

9) $\frac{x}{4} + 1 > 10$
 $\begin{array}{r} -1 \quad -1 \\ \frac{x}{4} > 9 \end{array}$

$4(\frac{x}{4}) > 9(4)$
 $x > 36$

$x > 36$

10) $\frac{x-6}{4} \leq 2$ (4)

$\begin{array}{r} x-6 \leq 8 \\ +6 \quad +6 \\ x \leq 14 \end{array}$

$x \leq 14$

11) $7x - 3 > 18$
 $\begin{array}{r} +3 \quad +3 \\ 7x > 21 \\ \hline x > 3 \end{array}$

$x > 3$

12) $3x + 1 \geq 7$
 $\begin{array}{r} -1 \quad -1 \\ 3x \geq 6 \\ \hline x \geq 2 \end{array}$

$x \geq 2$

Answer key

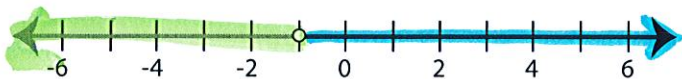
Solve each inequality and graph the solution.

Solutions are green.

1) $6x - 4 < -10$

$$\begin{array}{r} +4 \\ 6x < -6 \\ \hline x < -1 \end{array}$$

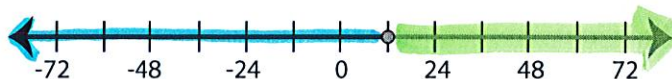
$x < -1$



2) $17 \leq \left(\frac{x}{2} + 11\right)$

$$\begin{array}{r} 34 \leq x + 22 \\ -22 \quad -22 \end{array}$$

$x \geq 12$



3) $-4x - 7 > 1$

$$\begin{array}{r} +7 \\ -4x > 8 \\ \hline x < -2 \end{array}$$

$x < -2$



4) $8 \leq -2x + 16$

$$\begin{array}{r} -16 \\ -8 \leq -2x \\ \hline x \leq 4 \end{array}$$

$x \leq 4$



5) $-9 < \frac{x}{5} - 2$

$$\begin{array}{r} +2 \\ 5(-7) < \left(\frac{x}{5}\right)(5) \end{array}$$

$x > -35$



6) $-6x + 20 \geq -11x$

$$\begin{array}{r} +6x \\ 20 \geq -5x \\ \hline x \geq -4 \end{array}$$

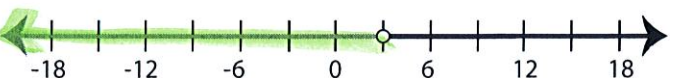
$x \geq -4$



7) $-1 > 5x - 16$

$$\begin{array}{r} +16 \\ \frac{15}{5} > \frac{5x}{5} \\ \hline x < 3 \end{array}$$

$x < 3$



8) $-7 \leq \left(\frac{x+2}{4}\right)$

$$\begin{array}{r} -28 \leq x + 2 \\ -2 \quad -2 \end{array}$$

$x \geq -30$

