

# Compound Inequalities Practice

Solve each compound inequality and graph its solution.

1)  $-11 < n - 7 < -7$

$$\begin{aligned} -11 &< n - 7 < -7 \\ +7 & \quad +7 \quad +7 \\ -4 &< n < 0 \end{aligned}$$
 Solution:  $(-4, 0)$

2)  $-3x < 6$  or  $-2 + x > 2$

$$\begin{aligned} -3x &< 6 & -2 + x &> 2 \\ x &> -2 & \text{or} & x > 4 \end{aligned}$$
 Solution:  $(-2, \infty)$

3)  $4 > a + 1 > -4$

$$\begin{aligned} 4 &> a + 1 > -4 \\ -1 & \quad -1 \quad -1 \\ 3 &> a > -5 \end{aligned}$$
 Solution:  $(-5, 3)$

4)  $-8x > -64$  or  $2x \geq 12$

$$\begin{aligned} -8x &> -64 & \text{or} & 2x \geq 12 \\ x &< 8 & \text{or} & x \geq 6 \end{aligned}$$
 Solution: All Real Numbers  $(-\infty, \infty)$

5)  $6a - 6 \leq -36$  or  $-9a - 2 < -92$

$$\begin{aligned} 6a - 6 &\leq -36 & \text{or} & -9a - 2 < -92 \\ 6a &\leq -30 & & -9a < -90 \\ a &\leq -5 & & a > 10 \end{aligned}$$
 Solution:  $(-\infty, -5] \cup (10, \infty)$

6)  $-25 \leq 8v - 9 < 71$

$$\begin{aligned} -25 &\leq 8v - 9 < 71 \\ +9 & \quad +9 \quad +9 \\ -16 &\leq \frac{8v}{8} < \frac{80}{8} & -2 &\leq v < 10 \end{aligned}$$
 Solution:  $[-2, 10)$

7)  $-13 < -7m - 6 \leq -41$

$$\begin{aligned} -13 &< -7m - 6 \leq -41 \\ +6 & \quad +6 \quad +6 \\ -7 &< -7m \leq -35 \\ -7 & \quad -7 \quad -7 \\ 1 &> m \geq 5 \end{aligned}$$
 Solution:  $\emptyset$

8)  $6 + 9x < -30$  or  $2x - 2 > 4$

$$\begin{aligned} 6 + 9x &< -30 & \text{or} & 2x - 2 > 4 \\ 9x &< -36 & & 2x > 6 \\ x &< -4 & \text{or} & x > 3 \end{aligned}$$
 Solution:  $(-\infty, -4) \cup (3, \infty)$

9)  $68 < 8v + 4 \leq 76$

$$\begin{aligned} 68 &< 8v + 4 \leq 76 \\ -4 & \quad -4 \quad -4 \\ 64 &< \frac{8v}{8} \leq \frac{72}{8} \\ 8 &< v \leq 9 \end{aligned}$$
 Solution:  $(8, 9]$

10)  $8x - 3 > 21$  or  $-2 - 7x > 26$

$$\begin{aligned} 8x - 3 &> 21 & \text{or} & -2 - 7x > 26 \\ 8x &> 24 & & -7x > 28 \\ x &> 3 & \text{or} & x < -4 \end{aligned}$$
 Solution:  $(-\infty, -4) \cup (3, \infty)$