

Solving Inequalities Worksheet

1) $0 > 3x - 3 - 6$

8) $-2(b + 1) - 4 < 10$

2) $4x + 1 - 1 \geq -8$

9) $26 + m \geq 5(-6 + 3m)$

3) $-1 \leq 2n + 4 - 5$

10) $20 - 2p \geq -2(p + 2) + 4p$

4) $-6 > 5n + 5 + 4$

11) $-6(1 + 6x) < 6(1 - 5x)$

5) $2p - 4p \leq -2$

12) $2(1 - 4r) \leq -2(r + 3) - 4$

6) $7 < -(-k - 3) + 2$

13) $-2(1 - 5x) > -(x + 1) - 1$

7) $3 - 2(n - 4) > -1$

14) $5x - (x + 2) > -5(1 + x) + 3$

Solving Inequalities

1) $0 > 3x - 6$

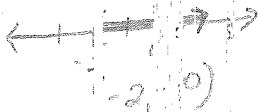
$$\begin{array}{r} 0 > 3x - 6 \\ + 6 & \\ \hline 6 > 3x \\ \frac{6}{3} > \frac{3x}{3} \\ 2 > x \end{array}$$



becomes $x < 2$ $(-\infty, 2)$

2) $4x + 8 \geq -8$

$$\begin{array}{r} 4x + 8 \geq -8 \\ - 8 & \\ \hline 4x \geq -16 \\ \frac{4x}{4} \geq \frac{-16}{4} \\ x \geq -4 \end{array}$$



3) $-1 \leq 4 - 5$

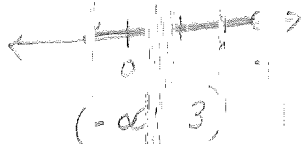
$$\begin{array}{r} -1 \leq 4 - 5 \\ - 4 & \\ \hline -5 \leq -1 \\ + 5 & \\ \hline 0 \leq 4 \end{array}$$



$x \geq 0$

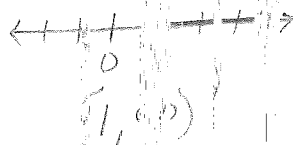
4) $-6 > 5 + 4$

$$\begin{array}{r} -6 > 5 + 4 \\ - 9 & \\ \hline -15 > 9 \\ \frac{-15}{-3} > \frac{9}{-3} \\ 5 < -3 \end{array}$$



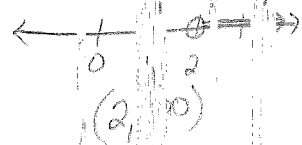
5) $2p - 3 \geq -2$

$$\begin{array}{r} 2p - 3 \geq -2 \\ + 3 & \\ \hline 2p \geq 1 \\ \frac{2p}{2} \geq \frac{1}{2} \\ p \geq \frac{1}{2} \end{array}$$



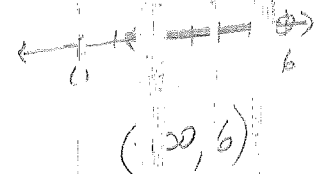
6) $7 < -3 + 2$

$$\begin{array}{r} 7 < -3 + 2 \\ + 3 & \\ \hline 10 < -1 \\ - 10 & \\ \hline 0 < -11 \\ \frac{0}{2} < \frac{-11}{2} \\ 0 < -5.5 \end{array}$$



7) $3 - 2 > -1$

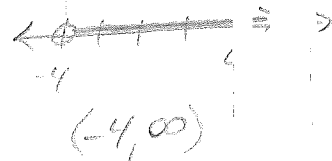
$$\begin{array}{r} 3 - 2 > -1 \\ + 2 & \\ \hline 1 > 1 \\ + 11 & \\ \hline 12 > 12 \\ \frac{12}{2} > \frac{12}{2} \\ 6 > 6 \end{array}$$



$n < 6$

8) $1 - 4 < 10$

$$\begin{array}{r} 1 - 4 < 10 \\ + 4 & \\ \hline -3 < 14 \\ + 3 & \\ \hline 0 < 17 \end{array}$$



9) $5 < 3m + 15$

$$\begin{array}{r} 5 < 3m + 15 \\ - 15 & \\ \hline -10 < 3m \\ \frac{-10}{3} < \frac{3m}{3} \\ -3.33 < m \end{array}$$

$m < 4$ $(-\infty, 4)$

10) $0 < p + 2 + 4p$

$$\begin{array}{r} 0 < p + 2 + 4p \\ - 2 & \\ \hline -2 < 5p \\ \frac{-2}{5} < \frac{5p}{5} \\ -0.4 < p \end{array}$$

$p < 6$

11) $6 < 6(1 - 5x)$

$$\begin{array}{r} 6 < 6(1 - 5x) \\ < -30x \\ + 30x & \\ \hline 6 < 6 - 30x \\ - 6 & \\ \hline 0 < -30x \\ \frac{0}{-30} > \frac{-30x}{-30} \\ 0 > x \end{array}$$

$x > -2$ $(-2, \infty)$

12) $1 < (r + 3) - 4$

$$\begin{array}{r} 1 < (r + 3) - 4 \\ + 4 & \\ \hline 5 < r - 1 \\ + 1 & \\ \hline 6 < r \end{array}$$

$r > 2$

13) $2 < -(x + 1) - 1$

$$\begin{array}{r} 2 < -(x + 1) - 1 \\ + 1 & \\ \hline 3 < -x - 1 \\ + 1 & \\ \hline 4 < -x \\ \frac{4}{-1} > \frac{-x}{-1} \\ -4 > x \end{array}$$

$x > 0$

14) $x > -5(1 + x) + 3$

$$\begin{array}{r} x > -5(1 + x) + 3 \\ > -5 - 5x + 3 \\ + 5x & \\ \hline 6x > -2 \\ \frac{6x}{6} > \frac{-2}{6} \\ x > -0.33 \end{array}$$

$x > 0$

flips to < by neg number