Solving Inequalities Worksheet

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

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

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

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

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

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

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

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

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

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

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

12) $2(1 - 4r) < -2(r + 3) - 4$

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

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

Solving Inequalities Worksheet

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

$0 > 3x - 9$

$+9 \quad +9$

$\frac{9}{3} > \frac{3x}{3}$

$3 > x$ becomes $\boxed{x < 3}$ $(-\infty, 3)$

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

$\frac{4x}{4} \geq \frac{-8}{4}$

$\boxed{x \geq -2}$ $[-2, \infty)$

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

$-1 \leq 2n - 1$

$+1 \quad +1$

$\frac{0}{2} \leq \frac{2n}{2}$

$0 \leq n$ or $\boxed{n \geq 0}$ $[0, \infty)$

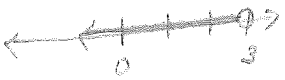
4) $-6 > 5n + 5 + 4$

$-6 > 5n + 9$

$-9 \quad -9$

$\frac{-15}{5} > \frac{5n}{5}$

$\boxed{n < 3}$ $(-\infty, 3)$



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

$-2p \leq -2$

$\frac{-2p}{-2} \leq \frac{-2}{-2}$

$\leq$ flips to $\geq$ due to $\div$ by neg number.

$\boxed{p \geq 1}$ $[1, \infty)$

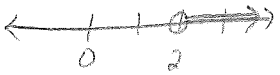
6) $7 < -(-k - 3) + 2$

$7 < k + 3 + 2$

$7 < k + 5$

$-5 \quad -5$

$2 < k$ or $\boxed{k > 2}$ $(2, \infty)$



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

$3 - 2n + 8 > -1$

$-2n + 11 > -1$

$-11 \quad -11$

$\frac{-2n}{-2} > \frac{-12}{-2}$

$\boxed{n < 6}$ $(-\infty, 6)$

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

$-2b - 2 + 4 < 10$

$-2b + 2 < 10$

$-2 \quad -2$

$\frac{-2b}{-2} < \frac{8}{-2}$

$\boxed{b > -4}$ $(-4, \infty)$

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

$26 + m \geq -30 + 15m$

$-15m \quad -15m$

$26 - 14m \geq -30$

$-26 \quad -26$

$\frac{-14m}{-14} \geq \frac{-56}{-14}$

$\boxed{m \leq 4}$ $(-\infty, 4]$

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

$20 - 2p \geq -2p - 4 + 4p$

$20 - 2p \geq 2p - 4$

$-2p \quad -2p$

$20 - 4p \geq -4$

$-20 \quad -20$

$\frac{-4p}{-4} \geq \frac{-24}{-4}$

$\boxed{p \leq 6}$ $(-\infty, 6]$

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

$-6 - 36x < 6 - 30x$

$+30x \quad +30x$

$-6 - 6x < 6$

$+6 \quad +6$

$\frac{-6x}{-6} < \frac{12}{-6}$

$\boxed{x > -2}$ $(-2, \infty)$

12) $2(1 - 4r) < -2(r + 3) - 4$

$2 - 8r < -2r - 6 - 4$

$2 - 8r < -2r - 10$

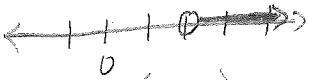
$+2r \quad +2r$

$2 - 6r < -10$

$-2 \quad -2$

$\frac{-6r}{-6} < \frac{-12}{-6}$

$\boxed{r > 2}$ $(2, \infty)$



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

$-2 + 10x > -x - 1 - 1$

$-2 + 10x > -x - 2$

$+x \quad +x$

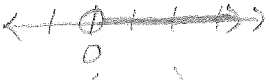
$-2 + 11x > -2$

$+2 \quad +2$

$11x > 0$

$\frac{11x}{11} > \frac{0}{11}$

$\boxed{x > 0}$ $(0, \infty)$



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

$5x - x - 2 > -5 - 5x + 3$

$4x - 2 > -2 - 5x$

$+5x \quad +5x$

$9x - 2 > -2$

$+2 \quad +2$

$\frac{9x}{9} > \frac{0}{9}$

$\boxed{x > 0}$ $(0, \infty)$