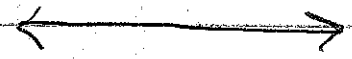
"And" Inequalities (#4)

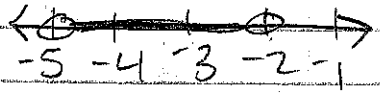
① $x > 4$ and $x \leq 2$

No Solution



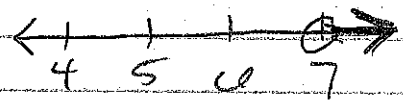
② $x < -2$ and $x > -5$

$-5 < x < -2$ $(-5, -2)$



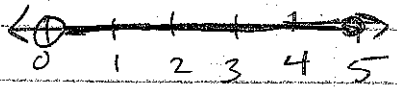
③ $x \geq 4$ and $x > 7$

$x > 7$ $(7, \infty)$



④ $x \leq 5$ and $x > 0$

$0 < x \leq 5$ $(0, 5]$

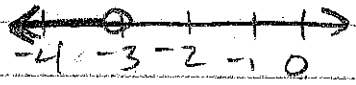


⑤ $x \geq 2$ and $x \leq 0$

No Solution

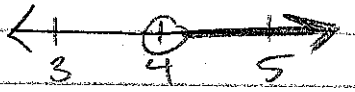
⑥ $x \leq 0$ and $x < -3$

$x < -3$ $(-\infty, -3)$



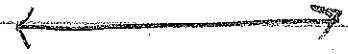
⑦ $x > 4$ and $x \geq -5$

$x > 4$ $(4, \infty)$



⑧ $x \leq -5$ and $x \geq 3$

No Solution



⑨ $x \leq 0$ and $x \geq 0$

$x = 0$

⑩ $x \geq 2$ and $x < 1$

No Solution

⑪ $x + 1 < 4$ and $x - 4 > 5$

$-1 \quad -1 \qquad +4 \quad +4$

$x < 3$ and $x > 9$

No Solution

⑫ $\frac{2x}{2} \leq \frac{8}{2}$ and $\frac{-4x}{-4} \leq \frac{-8}{-4}$

$x \leq 4$ and $x \geq 2$

$2 \leq x \leq 4$

$[2, 4]$

⑬ $x - 5 \geq 3$ and $x + 2 \leq 5$

$+5 \quad +5 \qquad -2 \quad -2$

$x \geq 8$ and $x \leq 3$

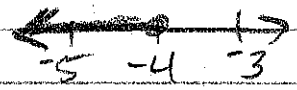
No Solution

(14) $-3x \geq 12$ and $2x \leq 12$

$\frac{-3}{} \quad \frac{}{2}$

$x \leq -4$ and $x \leq 6$

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



(15) $5x - 4 \leq 6$ and $2x - 2 \leq -4$

$\frac{5x \leq 10}{5} \quad \frac{2x \leq -2}{2}$

$x \leq 2$ and $x \leq -1$

$\boxed{x \leq -1}$ $(-\infty, -1]$

(16) $3x - 2 \leq 13$ and $-4x \leq -16$

$\frac{3x \leq 15}{3} \quad \frac{-4x \geq 16}{-4}$

$x \leq 5$ and $x \geq 4$

$\boxed{4 \leq x \leq 5}$ $[4, 5]$

(17) $\frac{1}{2}x - 2 > 2$ and $-3x - 2 > 4$

$2\left(\frac{1}{2}x > 4\right) \quad -3 \quad (-3x < 6)$

$x > 8$ and $x < -18$

No solution

(18) $-4 \leq x + 6 \leq 0$

$-6 \quad -6 \quad -6$

$\boxed{-10 \leq x < -6}$ $[-10, -6)$

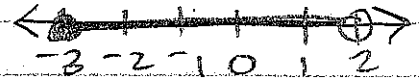
(19) $-2 \leq 2x + 4 < 8$

$-4 \quad -4 \quad -4$

$-6 \leq 2x < 4$

$\frac{}{2} \quad \frac{}{2} \quad \frac{}{2}$

$\boxed{-3 \leq x < 2}$ $[-3, 2)$



(20) $0 < -4x + 4 < 12$

$-4 \quad -4 \quad -4$

$-4 < -4x < 8$

$-4 \quad -4 \quad -4$

$1 > x > -2$

$\boxed{-2 < x < 1}$ $(-2, 1)$