$\cap$ intersection "and"

$\cup$ union "or"

3 a) $A \cap B = \{2, 4, 6, 8, 10\}$

$A \cup B = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

(4) $2x+1<5$ OR $4-3x<11$

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

$2x<4$ $\qquad$ $-3x<7$

$\frac{2x}{2}<\frac{4}{2}$ $\qquad$ $\frac{-3x}{-3}<\frac{7}{-3}$

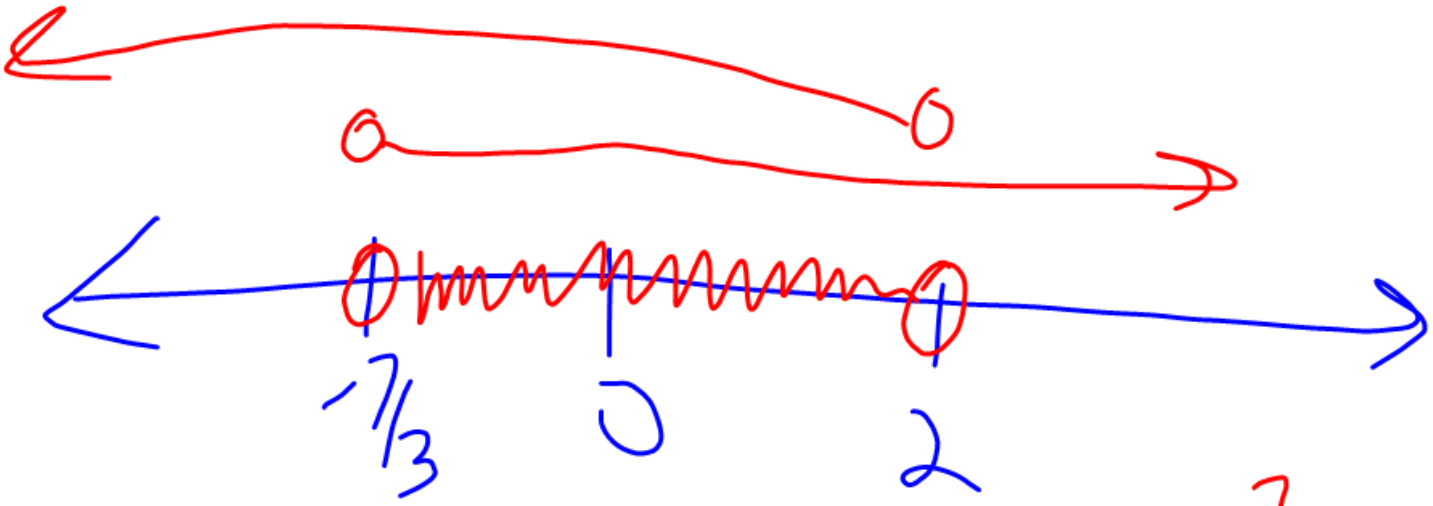
$x<2$ OR $x>-\frac{7}{3}$

$(-\infty, \infty)$

$\{x \mid x \text{ is any Real \#'s}\}$

$x < 2$ ~~OR~~ $x > -\frac{7}{3}$

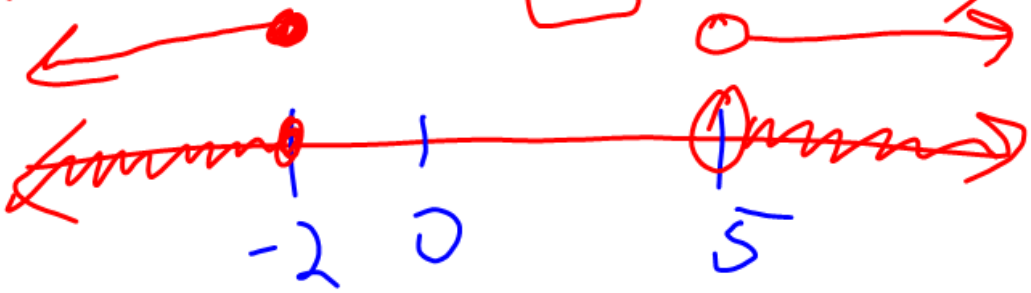
and



$(-7/3, 2)$ $\{x \mid -7/3 < x < 2\}$

or cannot be written this way

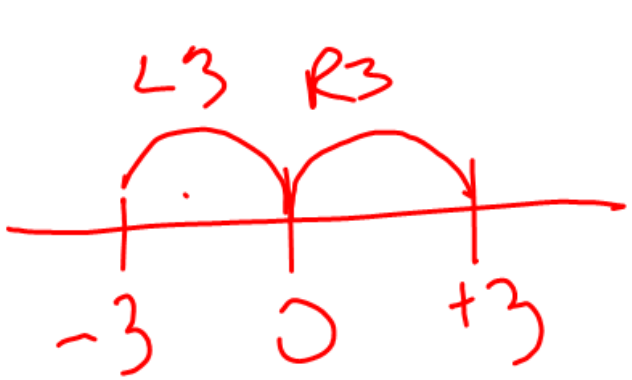
$\{x \mid x \leq -2 \text{ or } x > 5\}$



interval notation

$(-\infty, -2] \cup (5, \infty)$

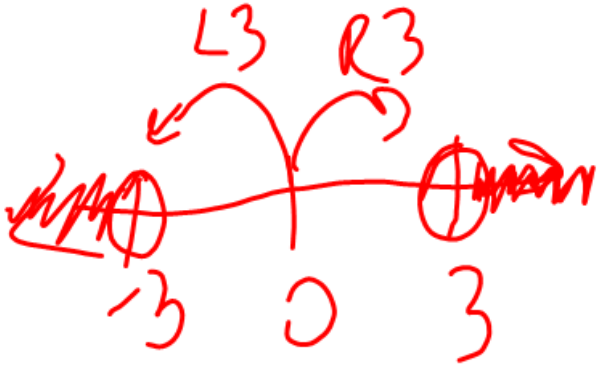
$|x| = 3$



$x = -3$

$x = 3$

$|x| > 3$



$x > 3$ or $x < -3$

$|x| < 3$

$-3 < x < 3$

$x < 3$ and $x > -3$

Solve $|x| + 2 \geq 7$

$|x| \geq 5$

$x \geq 5$ OR $x \leq -5$

7) $\left|\frac{2x-6}{14}\right| < \frac{3}{7}$

cannot write 'OR' this way

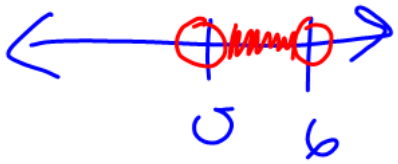
$14\left(-\frac{3}{7}\right) < 14\left(\frac{2x-6}{14}\right) < 14\left(\frac{3}{7}\right)$

$-6 < 2x-6 < 6$

$+6 \quad +6 \quad +6$

$\frac{0}{2} < \frac{2x}{2} < \frac{12}{2}$

$\{x \mid 0 < x < 6\}$



$(0, 6)$

(8) $-|3x+2|+5 \leq -6$

$+|3x+2| \leq +11$

$|3x+2| \geq 11$

$3x+2 \geq 11$ or $3x+2 \leq -11$

$3x \geq 9$ $\qquad \frac{3x}{3} \leq \frac{-13}{3}$

$x \geq 3$ or $x \leq -13/3$

$(-\infty, -\frac{13}{3}] \cup [3, \infty)$