

§1.7

compound inequalities

$$2x+3 > 5 \quad \text{and} \quad 3x+2 < 1$$

$$2x > 2$$

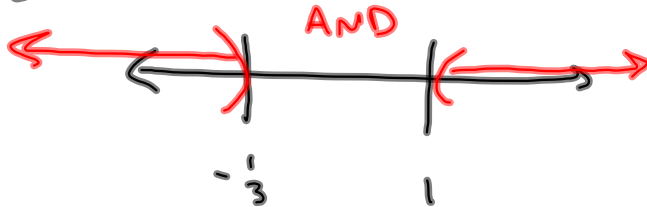
$$3x < -1$$

$$\frac{2x}{2} > \frac{2}{2}$$

$$\{x \mid x > 1$$

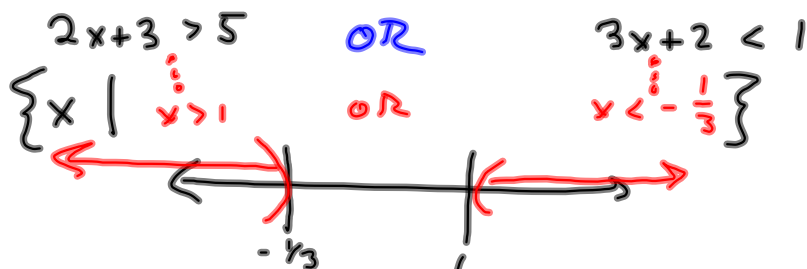
AND

$$x < -\frac{1}{3}\} = \emptyset$$



No sol'n!

$$x \in (-\infty, -\frac{1}{3}) \cap (1, \infty) = \emptyset$$



$$x \in (-\infty, -\frac{1}{3}) \cup (1, \infty)$$

C1 Practice Test Wednesday

Build a question



$$x \geq -3$$

$$x < 5$$

$$2x \geq -6$$

$$3x < 15$$

$$2x + 5 \geq -1$$

$$3x - 5 < 10$$

Tweak it.

$$-3x + 5 > -10$$

$$2x + 5 \geq -1$$

OR

$$-3x + 5 > -10$$

$$2x \geq -6$$

$$-3x > -15$$

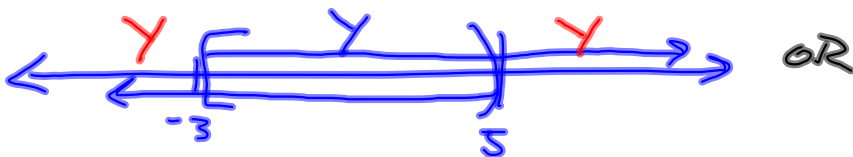
$$x \geq -3$$

$$\frac{-3x}{-3} < \frac{-15}{-3}$$

OR

$$x < 5$$

$$\{x \mid x \geq -3 \text{ OR } x < 5\} = \mathbb{R} = (-\infty, \infty)$$



Turn it into an "AND"! If it were an "and," then



$$\{x \mid x \geq -3 \text{ and } x < 5\} \text{ by work above.}$$

$$= [-3, 5)$$

AND - one interval or none

OR - 2 intervals OR $(-\infty, \infty)$

"Degenerate" sort of case.

$$(-\infty, 1] \cap [1, \infty) = \{1\}$$