

INEQUALITIES $<, >, \neq$

$$1 + 5(x-8) \leq 2 - (x+5)$$

$$1 + 5x - 40 \leq 2 - x - 5$$

$$\begin{array}{r} 5x - 39 \\ + x \quad +39 \end{array} \leq \begin{array}{r} -3 - x \\ +39 \quad +x \end{array}$$

$$\frac{6x}{6} \leq \frac{36}{6}$$

$$x \leq 6 \quad 6 \geq x$$



$$\frac{-3x}{-3} \leq \frac{12}{-3}$$

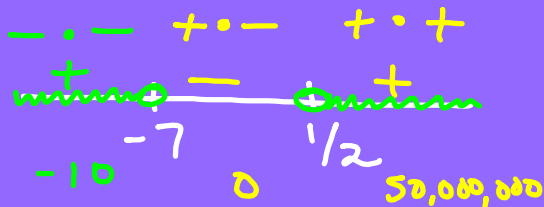
$$x \geq -4$$



$$-1 \cdot 2 < -1 \cdot 5$$

$$-2 > -5$$

$$(x+7)(2x-1) > 0$$



$$x < -7 \text{ OR } x > \frac{1}{2}$$

$$2x-1=0$$

$$x = \frac{1}{2}$$

Testing Points

* Use when variables are * or ÷.

- 1) Find where each quantity = 0
- 2) Test a pt. in each interval for + or -
- 3) Determine open/closed circles.
- 4) Shade solutions based on $> 0 = +$
 $< 0 = -$
- 5) Write Solution in symbols.

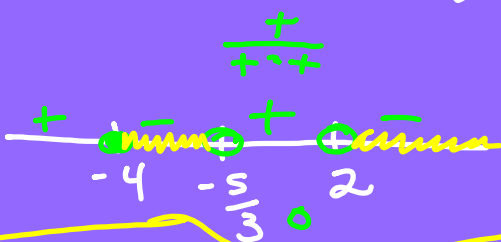
$$\frac{x+4}{(2-x)(3x+5)} \leq 0$$

$$3x+5=0$$

$$3x = -\frac{5}{3}$$

$$x = -\frac{5}{9}$$

$$\frac{+}{- \cdot +}$$



$$-4 \leq x < -\frac{5}{3} \text{ OR } x > 2$$

COMPOUND SENTENCES

$$2m+7 < 5m-9 \leq 3m+2$$

$$2m+7 < 5m-9 \text{ AND } 5m-9 \leq 3m+2$$

$$\frac{16}{3} < \frac{3m}{3} \quad \frac{2m}{2} \leq \frac{11}{2}$$

$$\frac{16}{3} < m \text{ AND } m \leq \frac{11}{2}$$



AND must overlap

$$\frac{16}{3} < m \leq \frac{11}{2}$$

$$-3 \leq 2y+9 \text{ OR } 18-4y > -10$$

$$-12 \leq \frac{2y}{2} \quad \frac{28}{4} > \frac{4y}{4}$$

$$-6 \leq y \text{ OR } 7 > y$$



OR = Anything Shaded

