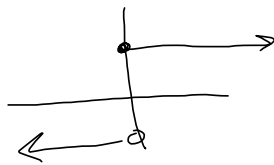


35. SCalc8 1.7.JIT.002. (3389991)

Evaluate the function at the indicated values. If the function does not exist at a value, enter NONE.

$$f(x) = \frac{|x|}{x} = \begin{cases} \frac{x}{x} & \text{if } x \geq 0 \\ \frac{-x}{x} & \text{if } x < 0 \end{cases}$$

$$= \begin{cases} 1 & \text{if } x \geq 0 \\ -1 & \text{if } x < 0 \end{cases}$$



I wanted this one, to show how to break down  $|x|$  or  $|f(x)|$  or  $|anything|$

$$= \begin{cases} \text{anything} & \text{if anything} \geq 0 \\ -\text{anything} & \text{if anything} < 0 \end{cases}$$

38. SCalc8 1.7.JIT.006.

Solve the linear inequality. Express the solution using interval notation.

$$5x + 3 \leq 8x + 9$$

$$5x + 3 \leq 8x + 9$$

$$-3x \leq 6$$

$$\frac{-3x}{-3} \geq \frac{6}{-3} \leq$$

Solution Set:  $\rightarrow$

$$x \geq \frac{6}{-3} = -2$$

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

Dividing by negative:

Do it JUST LIKE

I DO IT!

40. SCalc8 1.7.JIT.007.

Solve the linear inequality. Express the solution using interval notation.

$$-6 < 2 - 2x \leq -1$$

$$\frac{-2 = -2 \quad = -2}{-8 < -2x \leq -3}$$

Compound Inequality

$$4 = \frac{-8}{-2} > x \geq \frac{-3}{-2} = \frac{3}{2}$$

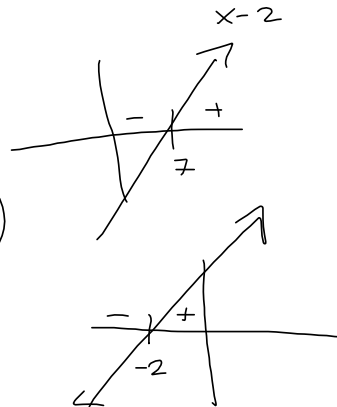
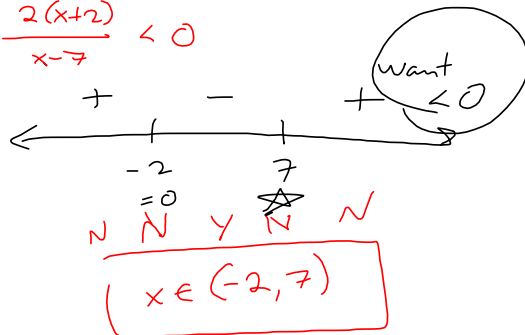
$$\left\{ x \mid \frac{3}{2} \leq x < 4 \right\} = \left[ \frac{3}{2}, 4 \right)$$

41. SCalc8 1.7.JIT.008. (3390054)

Solve the nonlinear inequality. Express the solution using interval notation.

$$\frac{2x+4}{x-7} < 0$$

$$\frac{2(x+2)}{x-7} < 0$$



42. SCalc8 1.7.JIT.009.

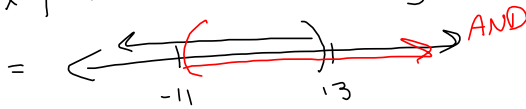
Solve the inequality. Express the answer using interval notation.

$$\left| \frac{x-3}{2} \right| < 6 \implies |x-1| < 12$$

$$\implies -12 < x-1 < 12$$

$$\implies x-1 < 12 \text{ AND } x-1 > -12$$

$$\left\{ x \mid x < 13 \text{ AND } x > -11 \right\}$$



$$= (-11, 13)$$

43. SCalc8 1.7.JIT.010.

Solve the inequality. Express the answer using interval notation.

$$9 - |2x - 3| \geq 1$$

$$-|2x-3| \geq -8$$

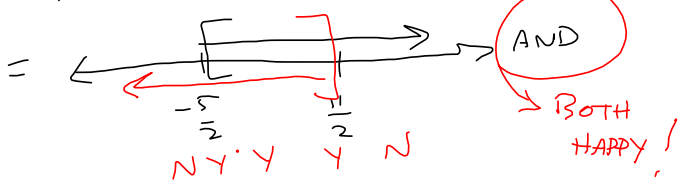
$$|2x-3| \leq 8$$

$$2x-3 \leq 8 \text{ AND } 2x-3 \geq -8$$

$$2x \leq 11$$

$$2x \geq -5$$

$$\left\{ x \mid x \leq \frac{11}{2} \text{ AND } x \geq -\frac{5}{2} \right\}$$



$$= \left[ -\frac{5}{2}, \frac{11}{2} \right]$$

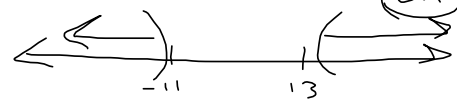
$$|x-1| > 12$$

$$-12 > x-1 > 12$$

is NOT OK.

$$x-1 > 12 \text{ OR } x-1 < -12$$

$$\left\{ x \mid x > 13 \text{ OR } x < -11 \right\}$$



$$= (-\infty, -11) \cup (13, \infty)$$