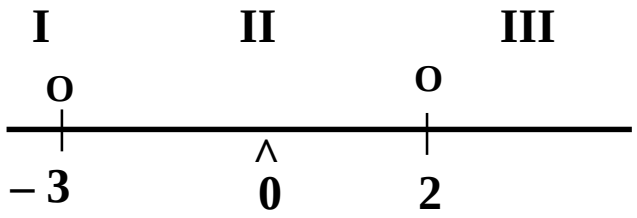
Mr. Mumaugh

Honors Trigonometry

Absolutely Right

$$\sqrt{\bigstar^2} = |\bigstar| = \begin{cases} -\bigstar & \text{if } \bigstar < 0 \\ \bigstar & \text{if } \bigstar \geq 0 \end{cases}$$

Solve and graph the solution set for: $\left|\frac{x-2}{x+3}\right| \geq \frac{1}{2}$



(1) Draw a number line. Mark significant positions (ie. when terms would be a zero.) label interval numbers using Roman Numerals.

Supply explicit reasons and/or explanations for each of the steps: 2a,2b,2c,...

(2) Consider interval I

a) $\left|\frac{-}{-}\right| = |+|$

b) $\frac{x-2}{x+3} \geq \frac{1}{2}$

c) $2x - 4 \leq x + 3$

d) $x \leq 7$

(3) consider interval II

a) $\left|\frac{-}{+}\right| = |-|$

b) $\frac{-(x-2)}{x+3} \geq \frac{1}{2}$

c) $-2x + 4 \geq x + 3$

d) $x \leq \frac{1}{3}$

(4) consider interval III

a) $\left|\frac{-}{-}\right| = |+|$

b) $\frac{x-2}{x+3} \geq \frac{1}{2}$

c) $2x - 4 \geq x + 3$

d) $x \geq 7$

(5) $x \leq 7$ and $x < -3$

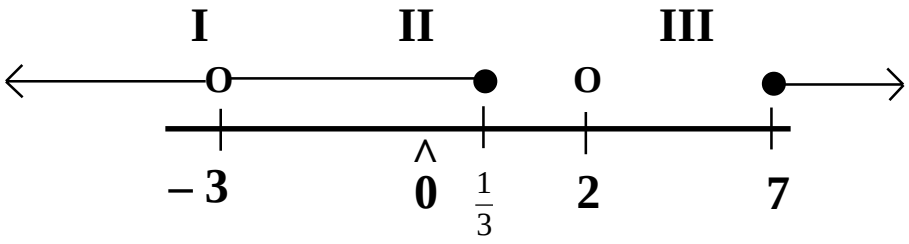
so _____

(6) $x > -3$ and $x \leq \frac{1}{3}$

so _____

(7) $x > 2$ and $x \geq 7$

so _____



Note: – 3 *is* the **left end point of interval** II and 2 *is* the **left end point** of interval III.

– 3 is not included because it would allow division by zero.

2 is not included because the proper solution's interval does not inlcude the number 2.