SM3 HANDOUT 4-6 Polynomial and Rational Inequalities

Solve using the "Sign Chart or table" method (show your work!!)

$$0 \leq x^2 - 4 \qquad 0 \leq f(x)$$
$$0 \leq (+)$$

Solution: x-values that make the expression positive

intervals			output	Solution?

$$0 < (x-1)(x+1)(x-2) \qquad 0 < (positive \text{ numbers})$$

1. Find the "real" zeroes of the polynomial <u>equation</u>.

$$0 = (x+1)(x-1)(x-2)$$

2. Build "Sign (+/-) Table"

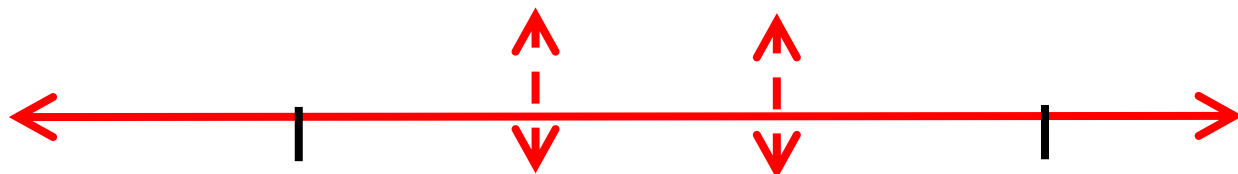| interval			output	Solution?

3. Write the solution.

$$0 \leq \frac{3x^2 + 12x - 36}{x^2 + 3x + 2}$$

$0 \leq 0 \text{ and postiive } \#'s \qquad 0 \leq 0, (+)$

$$y = \frac{3(x^2 + 4x - 12)}{(x+2)(x+1)}$$

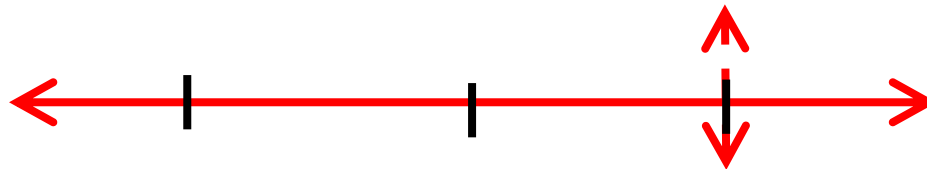$$y = \frac{3(x+6)(x-2)}{(x+2)(x+1)}$$

X-intercepts:
(No holes), VA's are:

Solution:

interval	Input	$(x+6)(x-2)(x+2)(x+1)$	output	Solution?

$$0 > \frac{2x^2 + 10x - 28}{x^2 - 4}$$

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

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

1. X-intercepts:

2. Vertical asymptote:

3. Hole:

interval	Input		output	Solution?