Hmwk: pg 295 #1a, 2ac, 3, 4-6(ac), 7, 8, 10, 11 (P = R - C), (13)

Solving Rational Inequalities

1. Solve the following using a factors chart (number line strategy).

$$x - 3 \geq \frac{10}{x}$$

$x \cdot \frac{(x-3)}{(1)} - \frac{10}{x} \geq 0$

$\frac{x^2 - 3x - 10}{x} \geq 0$

$y = \frac{(x-5)(x+2)}{x} \geq 0$

x-ints → ; V.A. ; we want the positives

x-ints: 5, −2

V.A. @ x = 0

	(x-int) x=−2	(V.A.) x=0	(x-int) x=5
x−5	−	−	+
x+2	−	+	+
x	−	−	+
	−	+	−	+

$x \geq 5$

$-2 \leq x < 0$ ← do not include x=0 since there is a V.A. @ that location

2. Solve the following inequality by using graphing methods.

$$\frac{x-4}{x-2} \geq \frac{x+6}{x+4}$$

$\frac{(x+4)(x-4) - (x+6)(x-2)}{(x+4)(x-2)} \geq 0$

$\frac{(x^2-16) - (x^2+4x-12)}{(x+4)(x-2)} \geq 0$

$\frac{-4x-4}{(x+4)(x-2)} \geq 0$

$\frac{-4(x+1)}{(x+4)(x-2)} \geq 0$ ← looking for $y \geq 0$

Graph

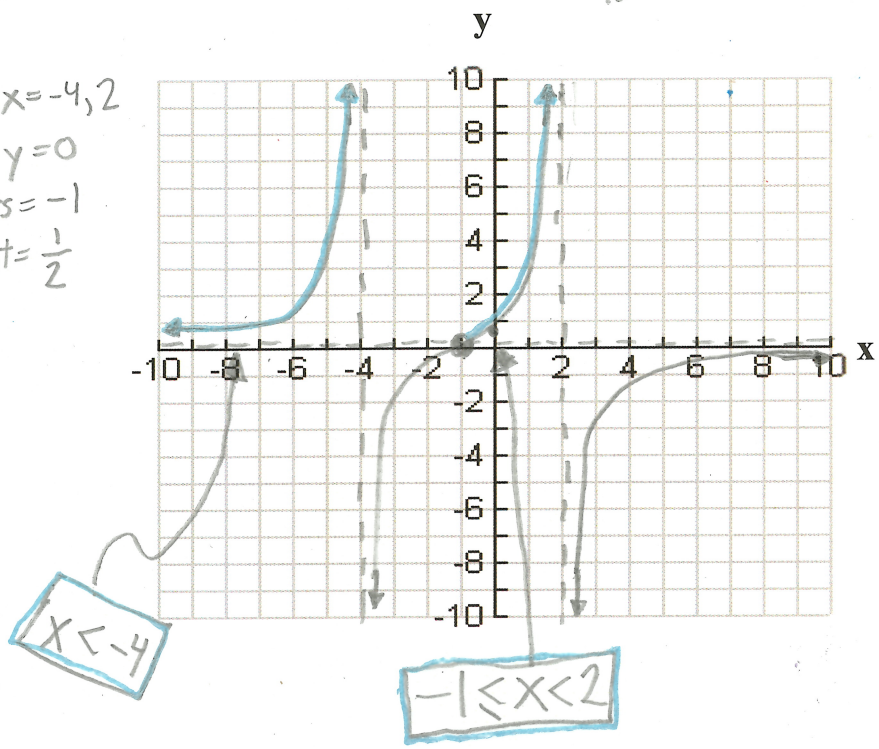
$y = \frac{-4(x+1)}{(x+4)(x-2)}$

V.A. @ x = −4, 2

H.A. @ y = 0

x-ints = −1

y-int = $\frac{1}{2}$



* *Suggestion: Do **NOT** use "cross multiplication" and/or "multiplying through" when solving rational inequalities. *