Nov. 3

Solving Rational Inequalities

To solve a rational inequality you solve the the inequality similar to solving a rational equation then you graph your answers on a number line and use testing intervals to determine which regions are part of your solution.

Solve the following inequality

$$x-2>\frac{7}{3x-2}$$

$x \neq \frac{2}{3}$ since $3x-2=0$, $3x=2$, $x=\frac{2}{3}$

$(3x-2)$

$x-2=\frac{7}{3x-2}$ $(3x-2)$

$(3x-2)(x-2)=7$

$3x^2-8x+4=7$

$3x^2-8x-3=0$

$-\frac{9}{3}$ $\frac{1}{3}$ $\quad$ $-\frac{3}{1}$ $\frac{1}{3}$

-9	$x-9$
1	
-8	

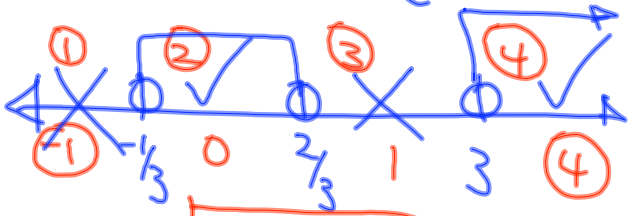
$(x-3)(3x+1)=0$

$x-3=0$, $x=3$

$3x+1=0$, $3x=-1$, $x=-\frac{1}{3}$

$x \neq 2/3$

Place our restrictions and zeros on our # line



$(-1)-2>\frac{7}{3(-1)-2}$

$-3>\frac{7}{-5}$ -1.2

$x-2>\frac{7}{3x-2}$

$-\frac{1}{3}<x<\frac{2}{3}$

$x>3$

$$\frac{4}{x+2} > \frac{6}{x+3}$$

$(x+2)(x+3)$ $(x+2)(x+3)$

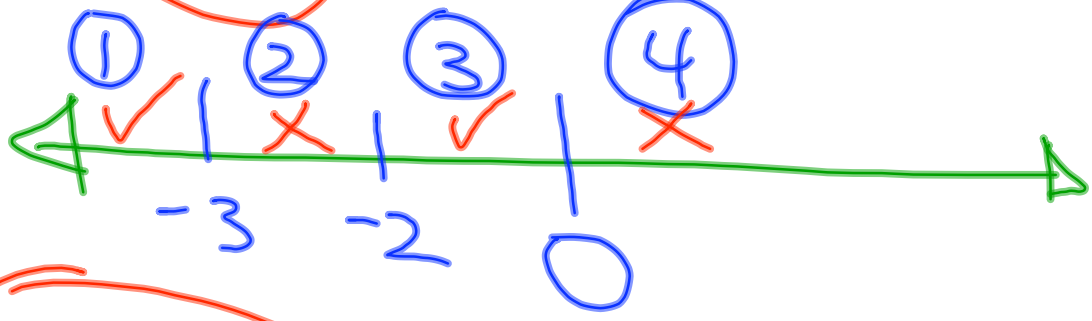
$x \neq -2, -3$

$4(x+3) = 6(x+2)$

$4x + 12 = 6x + 12$

$0 = 2x$

$x = 0$



$x < -3$

$-2 < x < 0$

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