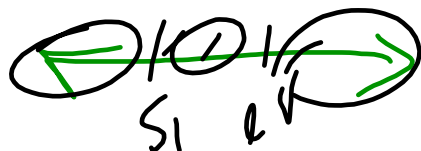
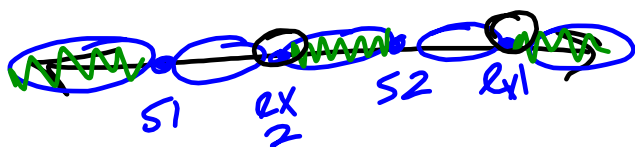


# 8-6B Solving Rational Inequalities

## Rational Inequalities

- find all the excluded values. ex 1, ex 2
- solve the related equation. sol. 1, sol. 2
- plot excluded values and solutions on the number line.
- pick points in each region to determine the solutions.
- state your solutions using set builder notation.



$$\frac{x-2}{3} = -\frac{2}{3} \implies x < 3$$

$$x \neq 5$$

$$x > 3$$

$$x < 3 \text{ or } x \leq 3$$

Solve the following inequality.

$$1. \frac{x}{3} - \frac{1}{x-2} < \frac{x+1}{4}$$

excl. value  $x \neq 2$

LCD =  $12(x-2)$

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

$$4x(x-2) - 12 = 3(x-2)(x+1)$$

$$4x^2 - 8x - 12 = 3(x^2 - x - 2)$$

$$4x^2 - 8x - 12 = 3x^2 - 3x - 6$$

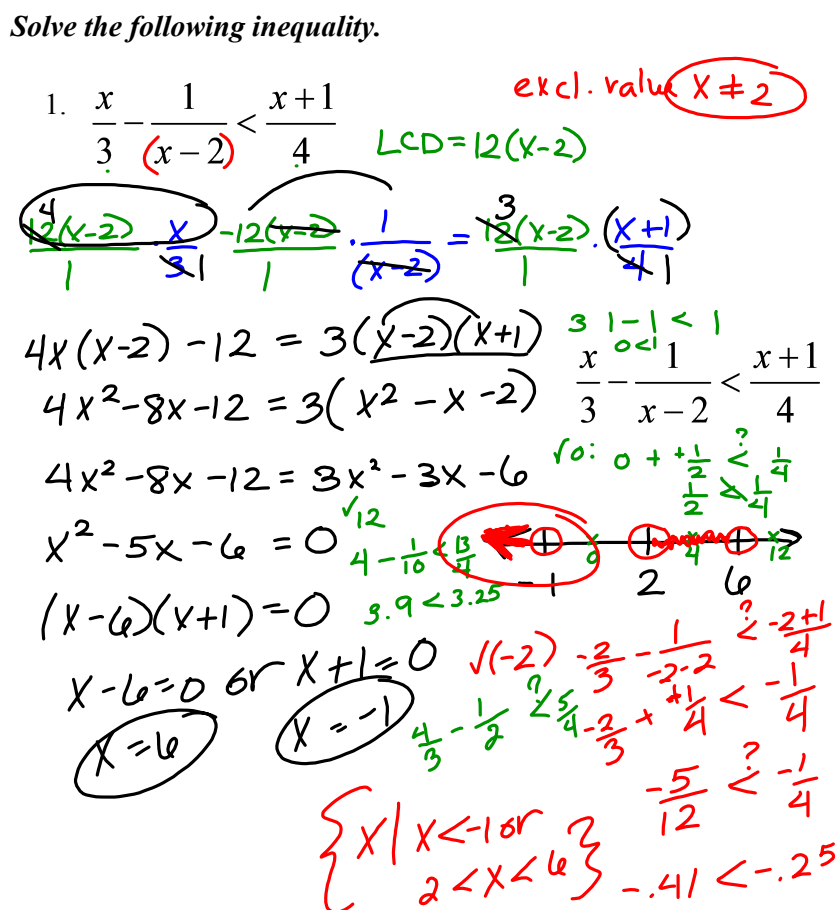
$$x^2 - 5x - 6 = 0$$

$$(x-6)(x+1) = 0$$

$$x-6=0 \text{ or } x+1=0$$

$$x=6 \text{ or } x=-1$$

$$\{x \mid x < -1 \text{ or } 2 < x < 6\}$$

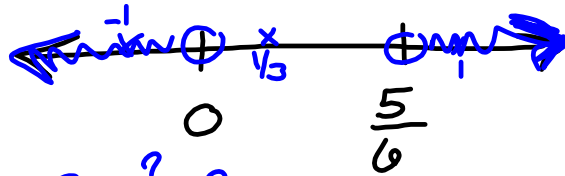


Solve the following inequality.

$$k \neq 0$$

$$\textcircled{23} \textcircled{1} \frac{2}{3k} + \frac{2}{9k} < \frac{2 \cdot 3k}{3}$$

LCD:  $9k$



$$3 + 2 = 6k$$

$$\frac{5}{6} = \frac{6k}{6}$$

$$k = \frac{5}{6}$$

$$-\frac{1}{3} - \frac{2}{9} < \frac{2}{3}$$

- < +

$$\frac{1}{3} + \frac{2}{9} < \frac{2}{3}$$

$$\frac{5}{9} < \frac{2}{3}$$

$$\left\{ k \mid k < 0 \text{ or } k > \frac{5}{6} \right\}$$

$$1 + \frac{2}{3} < \frac{2}{3}$$

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~~25-30 all~~

25-27 all

## Attachments

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9-2HW.notebook