

Math 1050 ~ College Algebra

15 Solving Rational Equations and Inequalities

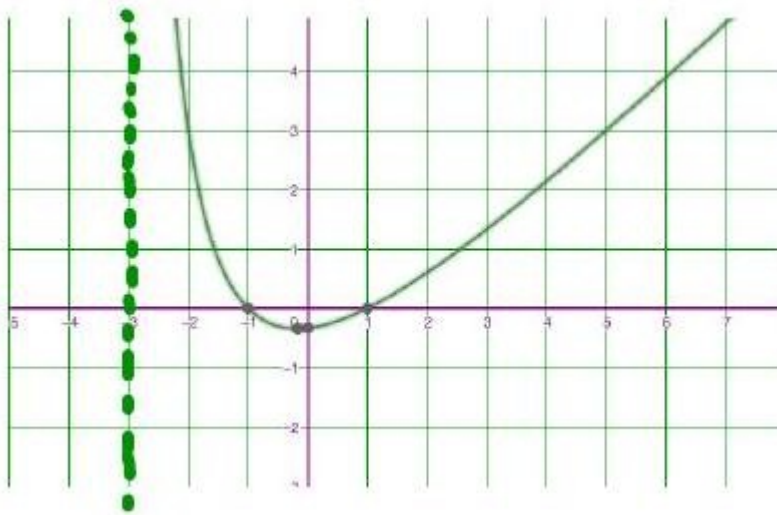
Solving Rational Equations and Inequalities

EX 1

For each of these equations, determine the solution from the graph, then do the algebra to arrive at the same answer.

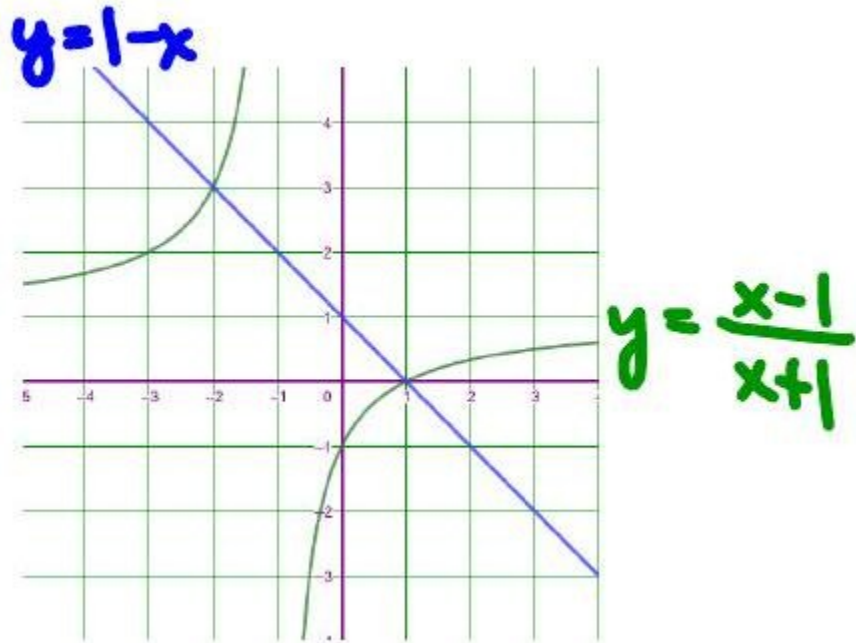
1a)

$$\frac{x^2 - 1}{x + 3} = 3$$



1b)

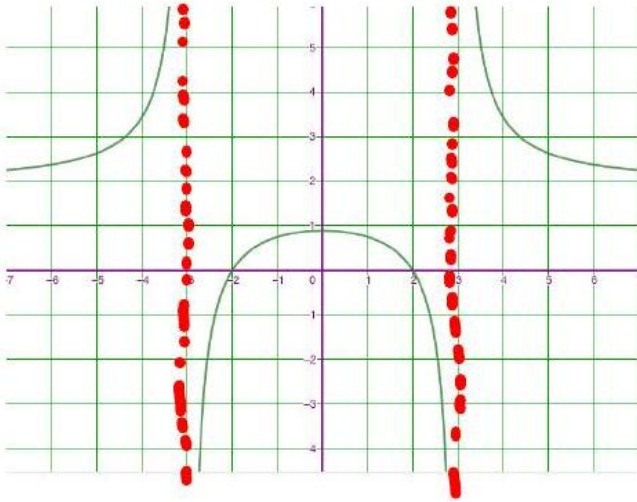
$$\frac{x-1}{x+1} = 1-x$$



EX 2

Determine the solution graphically and algebraically.

$$\frac{2x^2 - 8}{x^2 - 9} \leq 0$$



EX 3

Solve algebraically.

3a)

$$\frac{3x}{x-1} \geq \frac{x}{x+4} + 3$$

3b)

$$\frac{(x-2)(x+1)^2}{x(x+1)} \geq 0$$

EX 4

For each of these inequalities, fill in a sign line.

4a)

$$\frac{3x(x-4)}{(x-1)(x+2)^2} \leq 0$$

**4b)**

$$\frac{3x(x-4)^3}{(x-1)^2(x+2)^2} \leq 0$$

**4c)**

$$\frac{3x(x-4)}{(x-1)^2(x+2)^2} \leq 0$$

**4d)**

$$\frac{3x(x-4)}{(x-1)^3(x+2)^2} \leq 0$$

**4e)**

$$\frac{3x(x-4)^2}{(x-1)^2(x+2)^2} \leq 0$$



EX 5

A rectangular parking lot with a perimeter of 360 m is to have an area of at least 8000 m^2 . Within what bounds must the length of the rectangle be?