

4.6 Solving Rational Inequalities

LT24: I can solve rational equations and inequalities.

-We must get the expressions on one side and zero on the other.

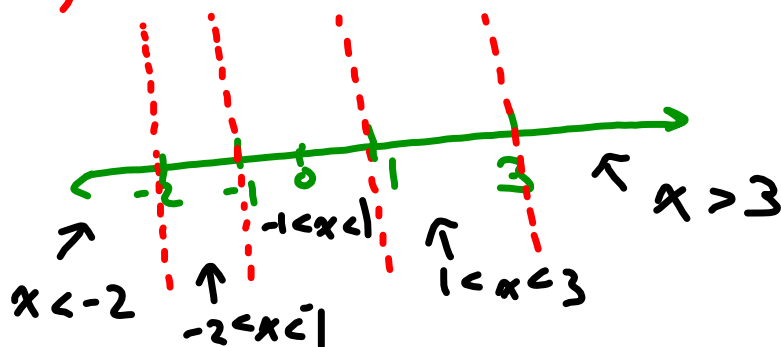
-We must look at all zeros and excluded values for our function. These define our intervals because they are the points where the function is likely to change signs.

Example:

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

$x = 1, -1$ Excluded values

$x = -2, 3$ Zeros



$x = -3$ $\frac{(-3+2)(-3-3)}{(-3-1)(-3+1)^2} > 0 \rightarrow \frac{(-1)(-6)}{(-4)(-2)^2} = \frac{6}{-16} \neq 0$

Graphing Calc.

- $x = -1.5$ ✓
- $x = 0$ ✓
- $x = 2$ ✗
- $x = 4$ ✓

$\therefore -2 < x < -1, -1 < x < 1, \text{ or } x > 3$