

# RATIONAL INEQUALITIES

1. GET EVERYTHING on LEFT SIDE, ZERO on RIGHT SIDE
2. GET A SINGLE FRACTION
3. FACTOR TOP FACTOR BOTTOM
4. SET EACH FACTOR EQUAL TO ZERO AND SOLVE
5. USE CRITICAL VALUES, X-AXIS AND GRAPH TO FIND ANSWERS

$<$  or  $\leq$  : ANSWER IS BELOW X-AXIS

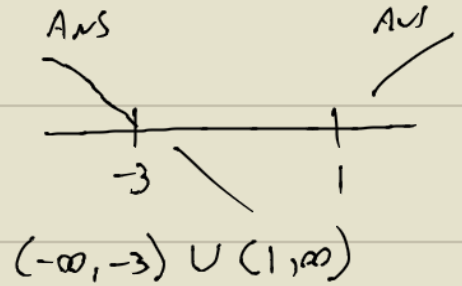
$>$  or  $\geq$  : ANSWER IS ABOVE X-AXIS

$<$  or  $>$  : PARENTHESES

$\leq$  or  $\geq$  : BRACKETS

#5  $\frac{(x+3)}{(x-1)} > 0$

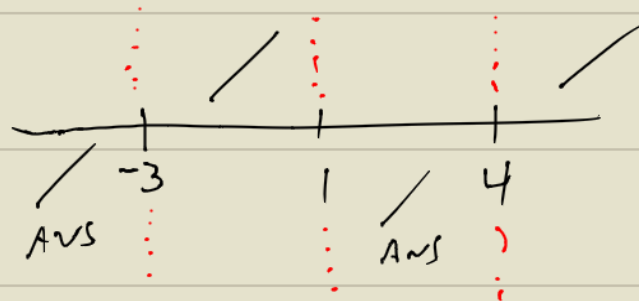
$x+3=0$      $x-1=0$   
 $x=-3$      $x=1$



#6

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

$x-4=0$      $x+3=0$      $x-1=0$   
 $x=4$      $x=-3$      $x=1$



$(-\infty, -3] \cup (1, 4]$

#7

$\frac{x}{x-3} \geq 2$

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

$\frac{x}{x-3} - \frac{2}{1} \geq 0$

$\frac{x}{x-3} - \frac{2(x-3)}{x-3} \geq 0$

$\frac{x}{x-3} - \frac{2x-6}{x-3} \geq 0$

$\frac{x-2x+6}{x-3} \geq 0$

$\frac{(-x+6)}{(x-3)} \geq 0$

$-x+6=0$      $x-3=0$   
 $6=x$      $x=3$

