

0.31  
p1

$$2 \leq \frac{|x-3|}{x^2-5x+6} = \frac{|x-3|}{(x-3)(x-2)} = \begin{cases} \frac{x-3}{(x-3)(x-2)} = \frac{1}{x-2} & x \geq 3 \\ \frac{-(x-3)}{(x-3)(x-2)} = \frac{-1}{x-2} & x < 3 \end{cases}$$

$x \geq 3$

$$2 \leq \frac{1}{x-2} \rightarrow 0 \leq \frac{-2x+5}{x-2}$$

Number line:  $\frac{0}{2} \quad \frac{5}{2}$  with a '+' sign above 0 and a '-' sign below 5/2.

$\frac{5}{2} < x \leq \frac{5}{2}$   
 $x \geq 3$  plus no solution  
 $\emptyset$  (empty set)

$x < 3$

$$2 \leq \frac{-1}{x-2} \rightarrow \frac{2x-3}{x-2} \leq 0$$

Number line:  $\frac{3}{2} \quad 2$  with '+' signs above 3/2 and below 2.

$\frac{3}{2} \leq x < 2$   
 $x < 3$  plus no solution  
 $\emptyset$  (empty set)

$\frac{3}{2} \leq x < 2$