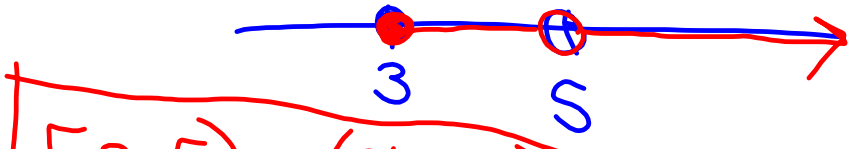
$$f(x) = \frac{\sqrt{x-3}}{x-5}$$

What is the domain of f?

$x-5 \neq 0$ and $x-3 \geq 0$

$x \neq 5$ $x \geq 3$



$[3,5) \cup (5,\infty)$

$$f(x) = \frac{x-5}{\sqrt{x-3}}$$

$\sqrt{x-3} \neq 0$ and $x-3 \geq 0$

$x-3 > 0$

What is the domain?

$x-3 > 0$

$x > 3$

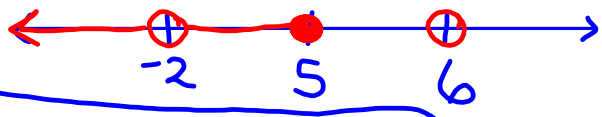
$\{x \mid x > 3\} = (3,\infty)$

$$f(x) = \frac{\sqrt{5-x}}{(x+2)(x-6)}$$

$5-x \geq 0$ and $x+2 \neq 0$ and $x-6 \neq 0$

$5 \geq x$ $\quad$ $x \neq -2$ $\quad$ $x \neq 6$

$x \leq 5$



$(-\infty, -2) \cup (-2, 5]$

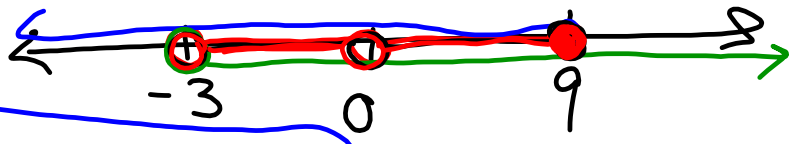
$$f(x) = \frac{\sqrt{9-x}}{x\sqrt{x+3}}$$

$9-x \geq 0$ and $x+3 > 0$ and $x \neq 0$

$9 \geq x$ $\quad$ $\frac{-x}{-1} \geq \frac{-9}{-1}$ $\quad$ $x > -3$ $\quad$ $(-\infty, 0) \cup (0, \infty)$

$x \leq 9$ $\quad$ $x \leq 9$ $\quad$ $(-3, \infty)$

$(-\infty, 9]$



$(-3, 0) \cup (0, 9]$