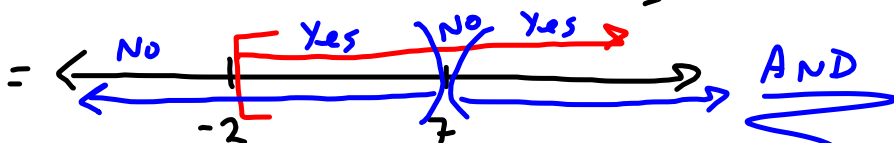


$$D(f+g) = D(f-g) = D(f \cdot g) = D(f) \cap D(g)$$

$$= \{x \mid x \in D(f) \text{ and } x \in D(g)\}$$

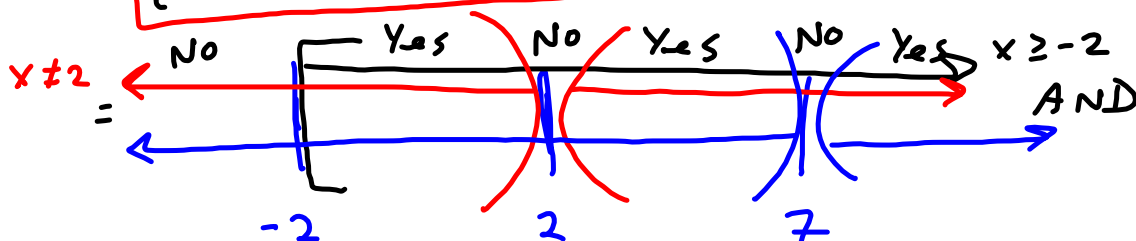
$$= \{x \mid x \geq -2 \text{ and } x \neq 7\}$$



$$= [-2, 7) \cup (7, \infty)$$

$$D\left(\frac{f}{g}\right) = \{x \mid x \in D(f) \text{ and } x \in D(g) \text{ and } g(x) \neq 0\}$$

$$= \{x \mid x \geq -2 \text{ and } x \neq 7 \text{ and } x \neq 2\}$$



$$= [-2, 2) \cup (2, 7) \cup (7, \infty)$$

Need $g(x) \neq 0$

$$\frac{x-2}{x-7} \neq 0$$

$$\frac{f}{g} = \frac{\sqrt{2x+4}}{\frac{x-2}{x-7}}$$

$$\begin{matrix} x-2 \neq 0 \\ \swarrow \\ x \neq 2 \end{matrix} \longrightarrow$$

$$f(x) = \sqrt{2x+4} \quad g(x) = \frac{x-2}{x-7}$$

$$\frac{g}{f} = \frac{\frac{x-2}{x-7}}{\sqrt{2x+4}}$$

$$D\left(\frac{g}{f}\right) = \{x \mid x \in D(g) \text{ and } x \in D(f) \text{ and } f(x) \neq 0\}$$

$$= \{x \mid x \neq 7 \text{ and } x \geq -2 \text{ and } \sqrt{2x+4} \neq 0\}$$

$$= \{x \mid x \neq 7 \text{ and } \underbrace{x \geq -2 \text{ and } x \neq -2}_{\text{red underline}}\}$$

$$= \{x \mid x \neq 7 \text{ and } x > -2\}$$

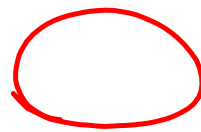
Need $\sqrt{2x+4} \neq 0$ =

$$2x+4 \neq 0$$

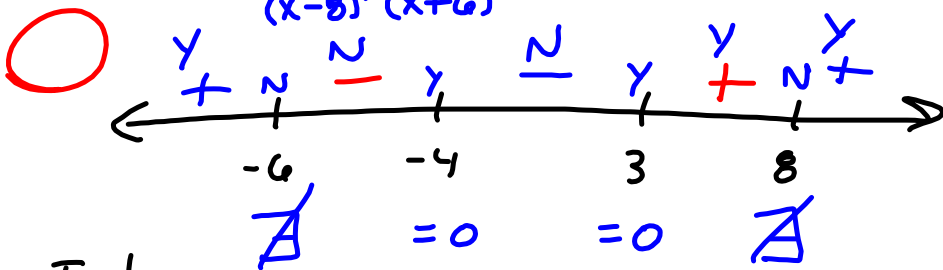
$$2x \neq -4 \quad = \quad (-2, 7) \cup (7, \infty)$$

$$x \neq -2$$

$$D \left(\sqrt{\frac{(x-3)(x+4)^2}{(x-8)^4(x+6)}} \right)$$



Need $\frac{(x-3)(x+4)^2}{(x-8)^4(x+6)} \geq 0$ and Denom $\neq 0$



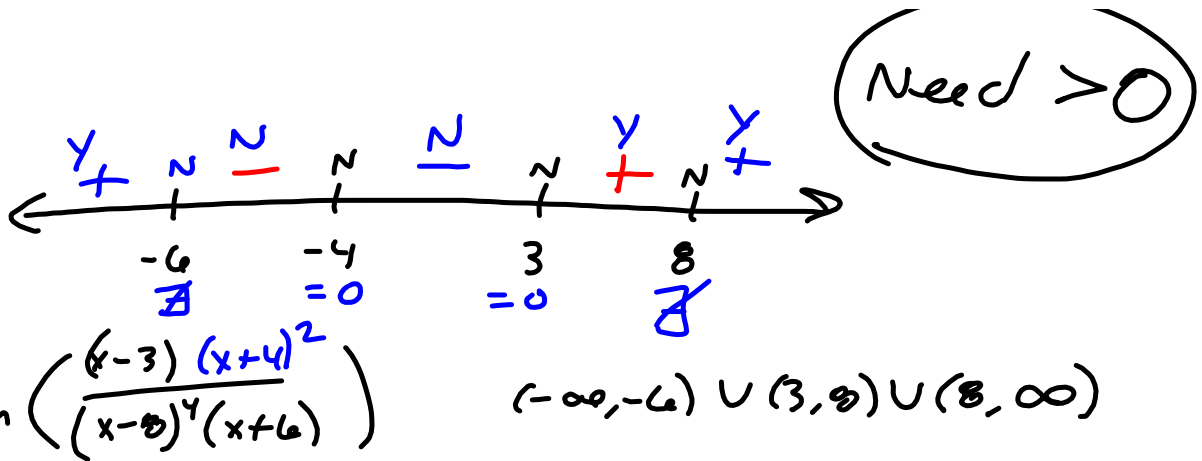
Test

$$x = 9$$

$$\frac{(4)(13)^2}{(1)^4(15)} > 0$$

$$(-\infty, -6) \cup \{-4\} \cup [3, 8) \cup (8, \infty)$$

(4b)



Need $\frac{(x-3)(x+4)^2}{(x-8)^4(x+6)} > 0$ and Denom $\neq 0$

