

$$\frac{7}{x-3} \geq \frac{2}{x+4}$$

$$\frac{7}{x-3} - \frac{2}{x+4} \geq 0$$

$$\frac{7(x+4)}{(x-3)(x+4)} - \frac{2(x-3)}{(x+4)(x-3)} \geq 0$$

$$\frac{7x+28-2x+6}{(x-3)(x+4)} \geq 0$$

$$\frac{5x+34}{(x-3)(x+4)} \geq 0$$

Find x-intercept

$$\frac{5x+34}{(x-3)(x+4)} \geq 0$$

$$5x+34 \geq 0$$

$$5x \geq -34$$

$$x \geq \frac{-34}{5}$$

$$x \geq -6.8$$

∴ x-intercept is $x = -6.8$

Find Vertical Asymptotes

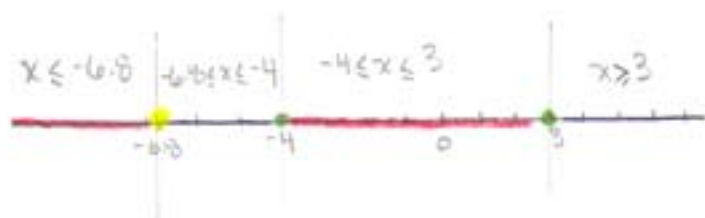
$$x-3=0 \quad \text{and} \quad x+4=0$$

$$x=3$$

$$x=-4$$

∴ vertical asymptotes are

$$x=3 \text{ and } -4$$



$$f(-7) = \frac{5(-7)+34}{(-7-3)(-7+4)}$$

-ve

$$f(-5) = \frac{5(-5)+34}{(-5-3)(-5+4)}$$

+ve

$$f(2) = \frac{5(2)+34}{(2-3)(2+4)}$$

-ve

$$f(4) = \frac{5(4)+34}{(4-3)(4+4)}$$

+ve

$$\therefore \frac{7}{x-3} \geq \frac{2}{x+4} \quad \text{when} \quad -6.8 \leq x \leq -4 \quad \text{and} \quad x \geq 3$$