

Review - AsymptotesVertical: Set denom = 0

$$f(x) = \frac{3}{x+1}$$

$$\text{Vert Asym } x = -1$$

Horizontal: (a) Num. less degree than denom.

$$\text{Hor. Asym } y = 0$$

$$f(x) = \frac{3}{x+1}$$

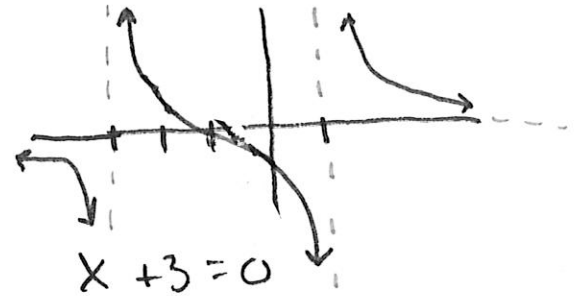
(b) Num and Denom same degree

$$f(x) = \frac{2x^2 + 3x + 1}{3x^2 + 4}$$

$$y = \frac{2}{3} \text{ Hor. Asym.}$$

**Ex 4**

$$(a) f(x) = \frac{x+1}{(2x-1)(x+3)}$$

Vert. Asymptote:  $2x - 1 = 0$ 

$$+1 \quad +1$$

$$\frac{2x}{2} = \frac{1}{2}$$

$$x = \frac{1}{2}$$

$$x + 3 = 0$$

$$-3 \quad -3$$

$$x = -3$$

Horizontal Asymptote:  $\frac{x}{x \cdot x} \rightarrow \frac{x}{x^2}$  Num. Less degree than denom.

$$\hookrightarrow y = 0$$

<sup>3.5</sup>  
Ex 4 (b)

$$\frac{2x+1}{x-3}$$

Vertical Asymptote:  $x-3=0$

$$\begin{array}{r} x-3=0 \\ +3 \quad +3 \\ \hline \boxed{x=3} \end{array}$$

Horizontal Asymptote:  $\frac{x}{x}$  Same degree Num. and Denom.

$$y = \frac{2}{1} = 2$$

$$\boxed{y=2}$$

