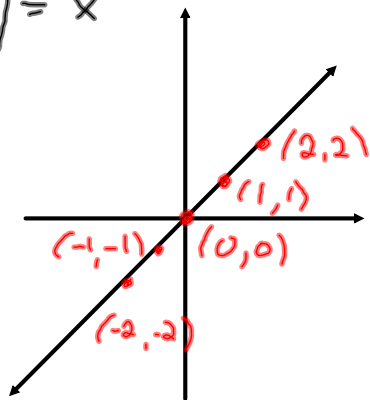


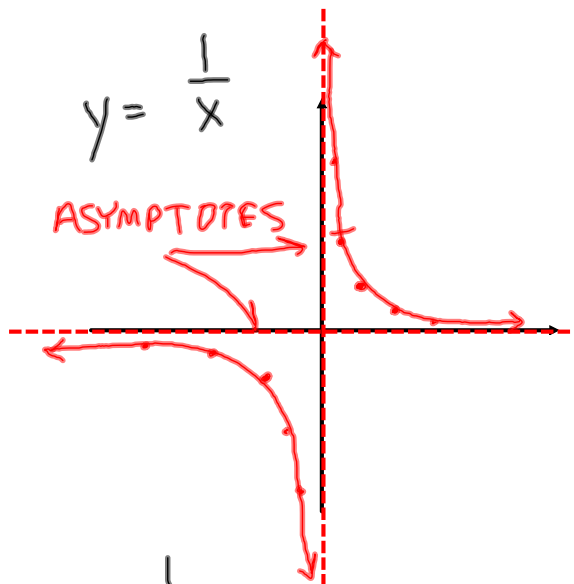
RATIONAL FUNCTIONS

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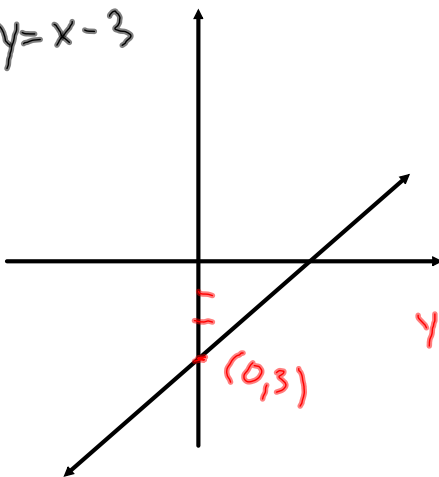
$$y = x$$



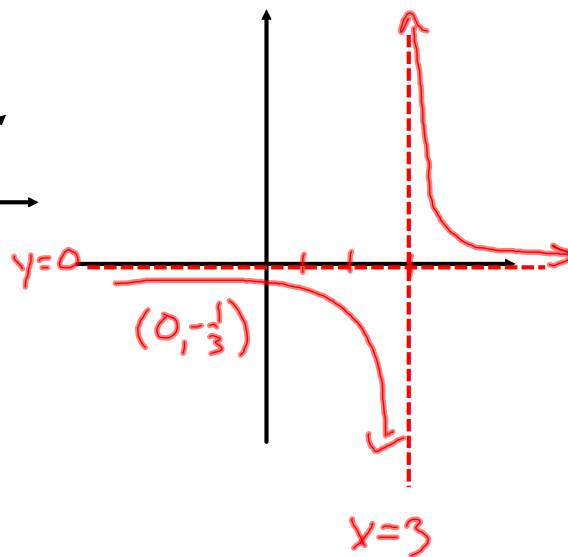
$$y = \frac{1}{x}$$



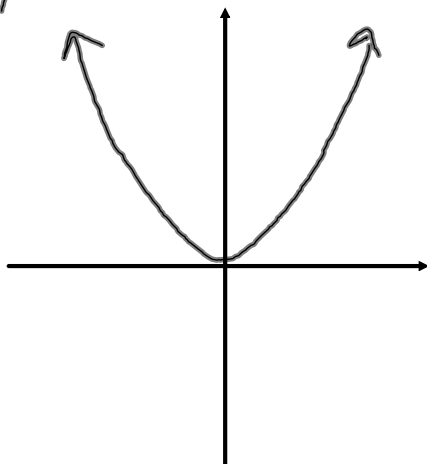
$$y = x - 3$$



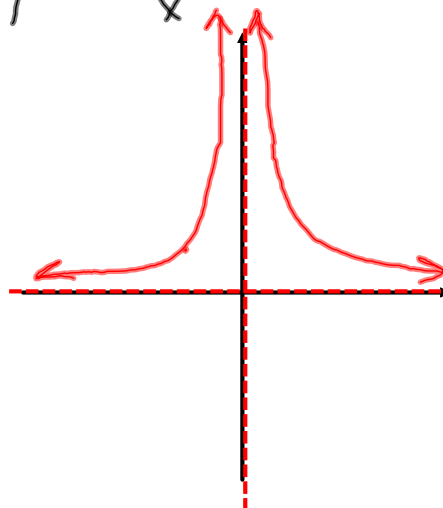
$$y = \frac{1}{(x-3)}$$



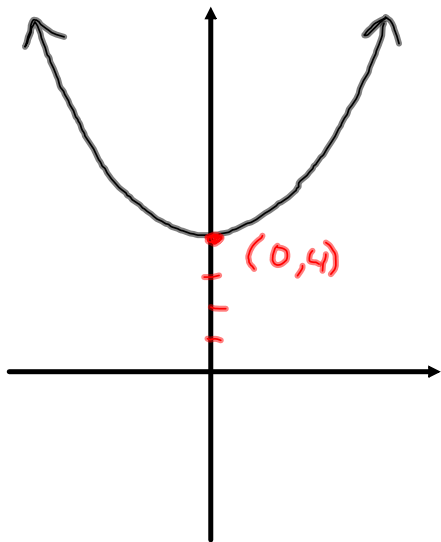
$$y = x^2$$



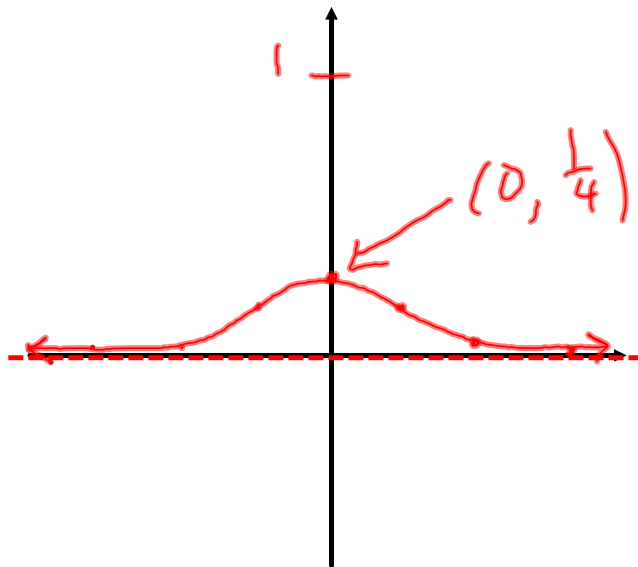
$$y = \frac{1}{x^2}$$



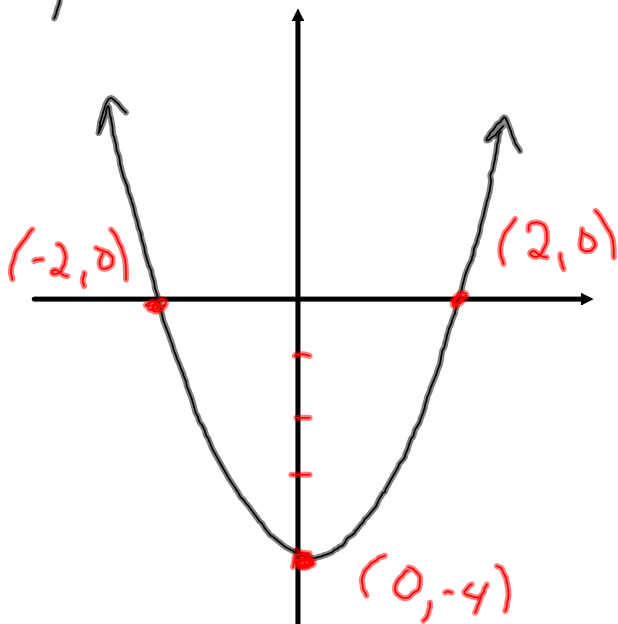
$$y = x^2 + 4$$



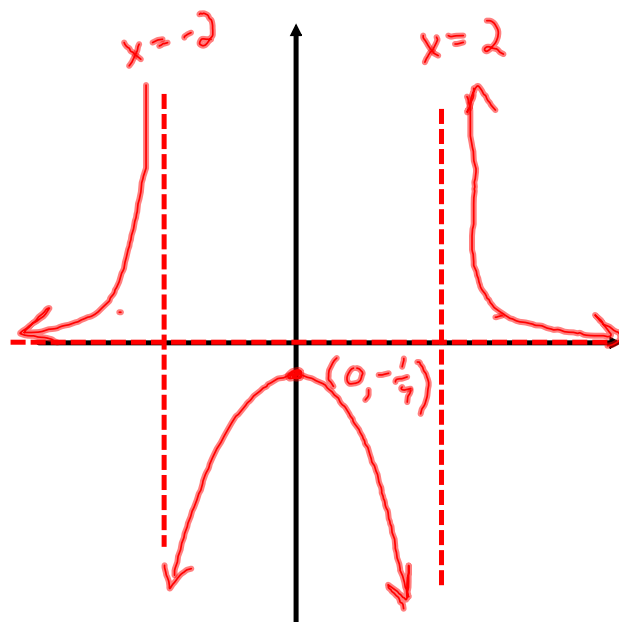
$$y = \frac{1}{x^2 + 4}$$



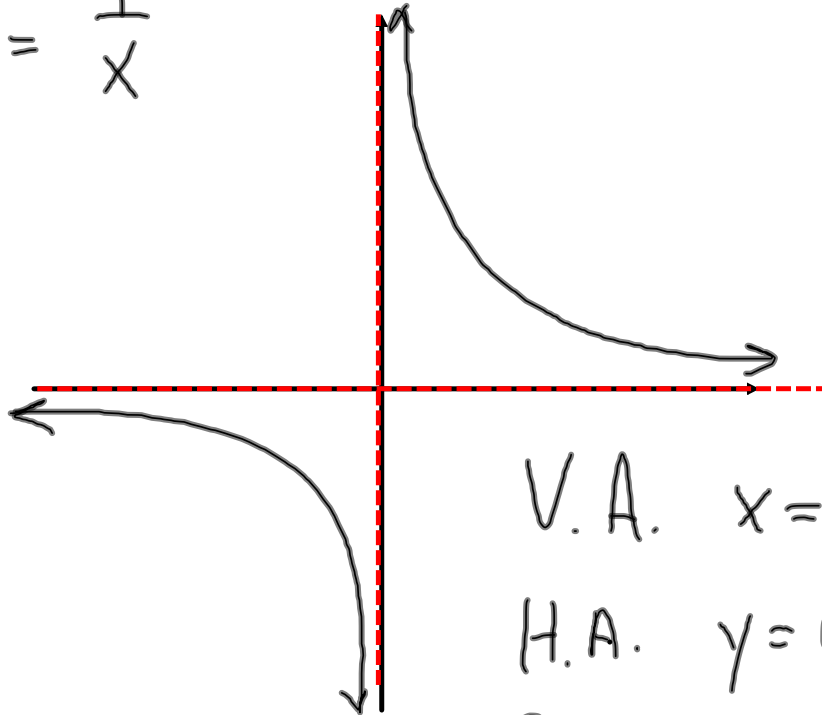
$$y = x^2 - 4$$



$$y = \frac{1}{x^2 - 4}$$



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

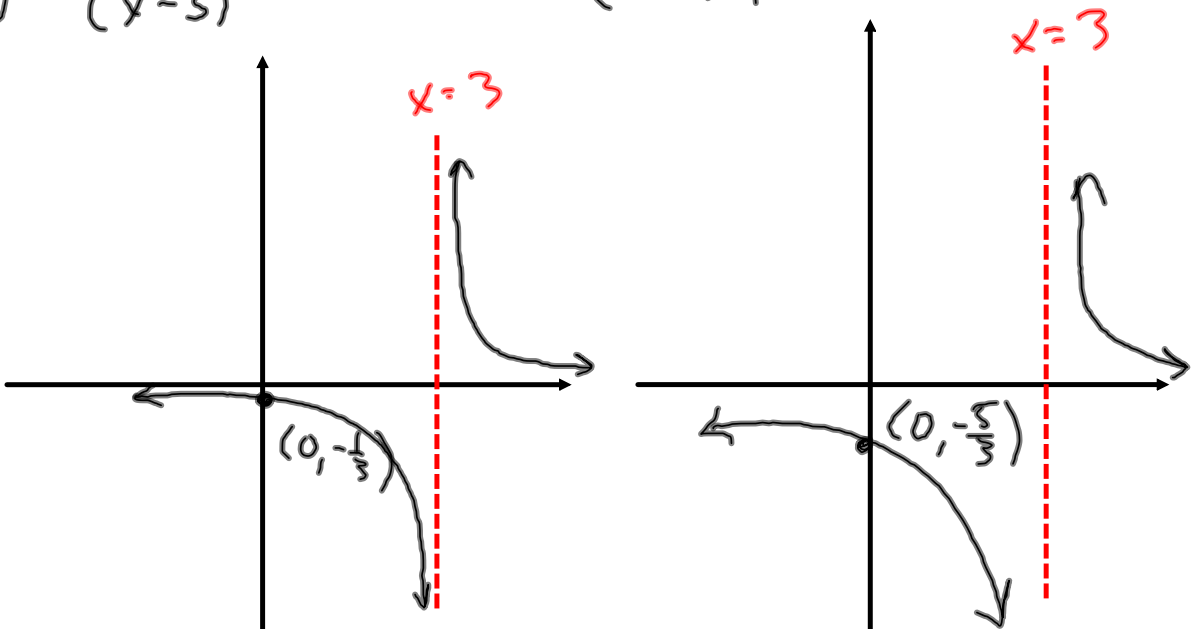


V.A. $x=0$

H.A. $y=0$

$$y = \frac{1}{(x-3)}$$

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

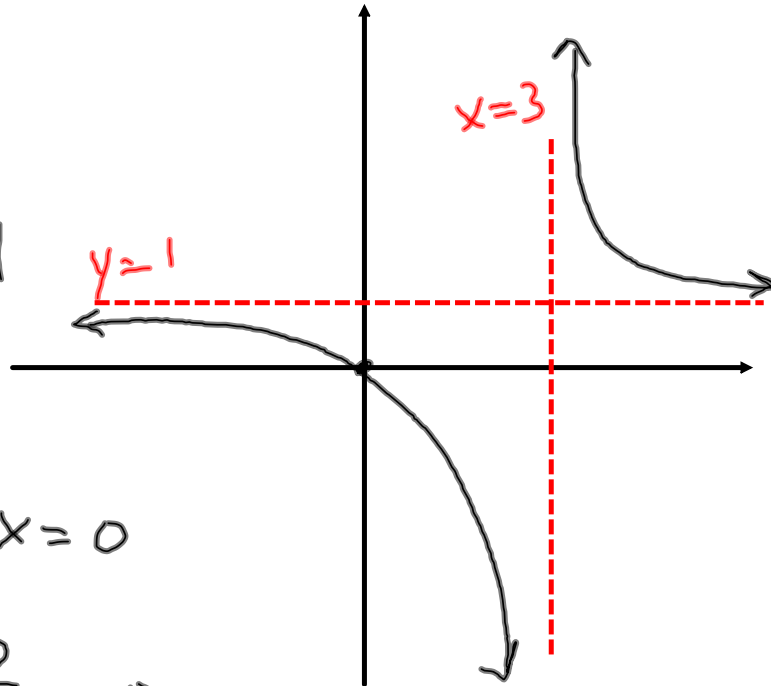


$$f(x) = \frac{x}{x-3}$$

$$\text{H.A. } y = \frac{1}{1} = 1$$

$$y\text{-INT} \rightarrow x = 0$$

$$f(x) = \frac{x}{x-3} = \frac{0}{0-3} = 0$$

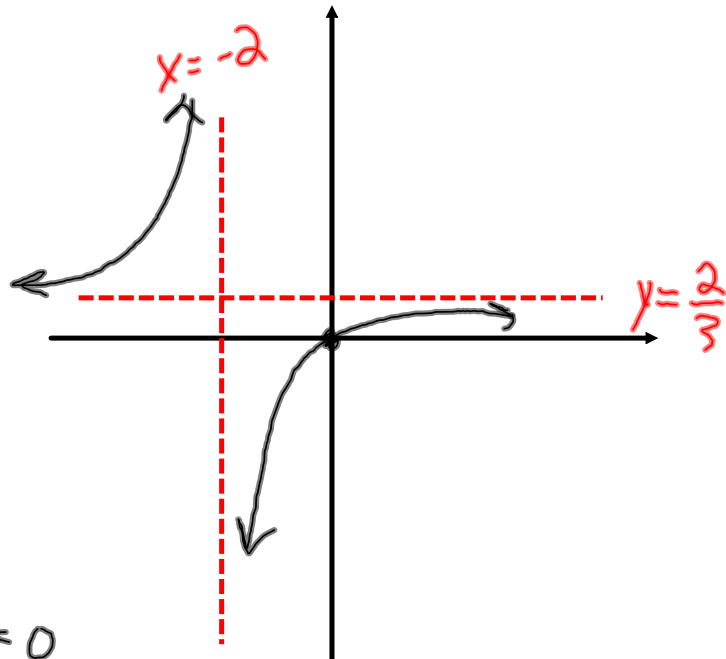


$$f(x) = \frac{2x}{3x+6}$$

$$\text{H.A.} = \frac{2}{3} = \frac{2}{3}$$

$$y\text{-INT} \rightarrow x = 0$$

$$f(x) = \frac{2x}{3x+6} = \frac{2(0)}{3(0)+6} = 0$$

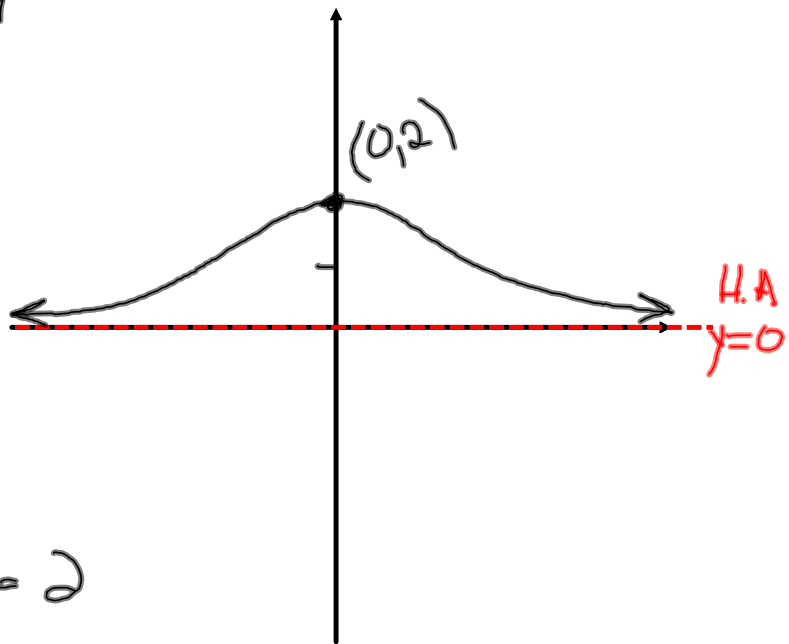


$$f(x) = \frac{8}{x^2 + 4}$$

$$y \rightarrow \text{INT} \rightarrow x = 0$$

$$f(x) = \frac{8}{x^2 + 4}$$

$$= \frac{8}{(0)^2 + 4} = \frac{8}{4} = 2$$



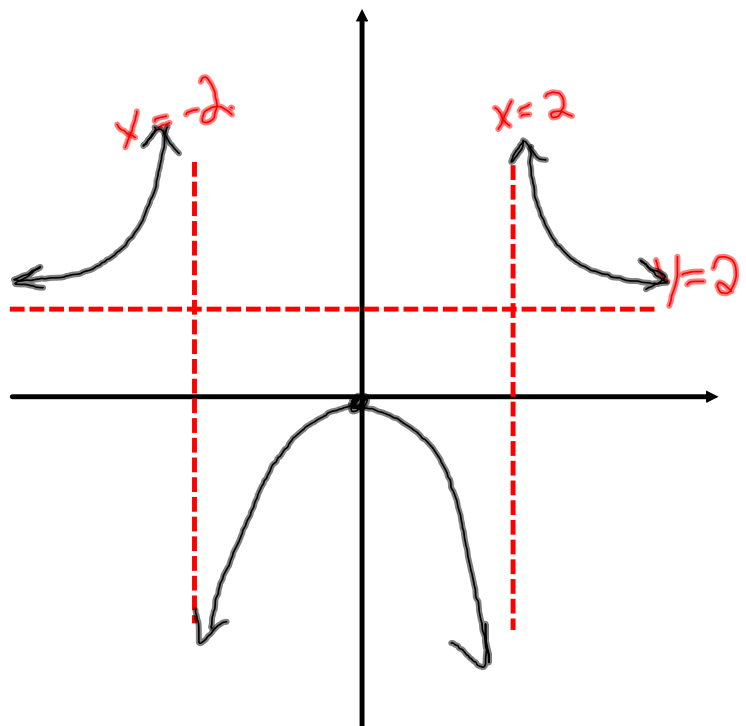
$$y = \frac{2x^2}{x^2 - 4}$$

$$\text{V.A. } x \neq 2 \text{ or } -2$$

$$\text{H.A.} = \frac{2}{1} = 2$$

$$y \rightarrow \text{INT} \rightarrow x = 0$$

$$y = \frac{2x^2}{x^2 - 4} = \frac{2(0)^2}{(0)^2 - 4} = 0$$



$$f(x) = \frac{x^2 - 4}{x + 2} = \frac{(x-2) \cancel{(x+2)}}{x + \cancel{2}}$$

$$f(x) = x - 2$$
$$y = x - 2$$

N.P.V. $x \neq -2$

