

Example

Sketch the graph of the rational function

$$m(x) = \frac{x-4}{x^2-16} = \frac{x-4}{(x+4)(x-4)} = \frac{1}{x+4}$$

$$D: \{x \in \mathbb{R} \mid x \neq -4, 4\}$$

horiz. Asy. (Deg. num < Deg. den)

$$y = 0$$

Vertical Asy.

$$x = -4$$

x-int (y=0)

$$0 = 1$$

none

y-int (x=0)

$$y = 1/4$$

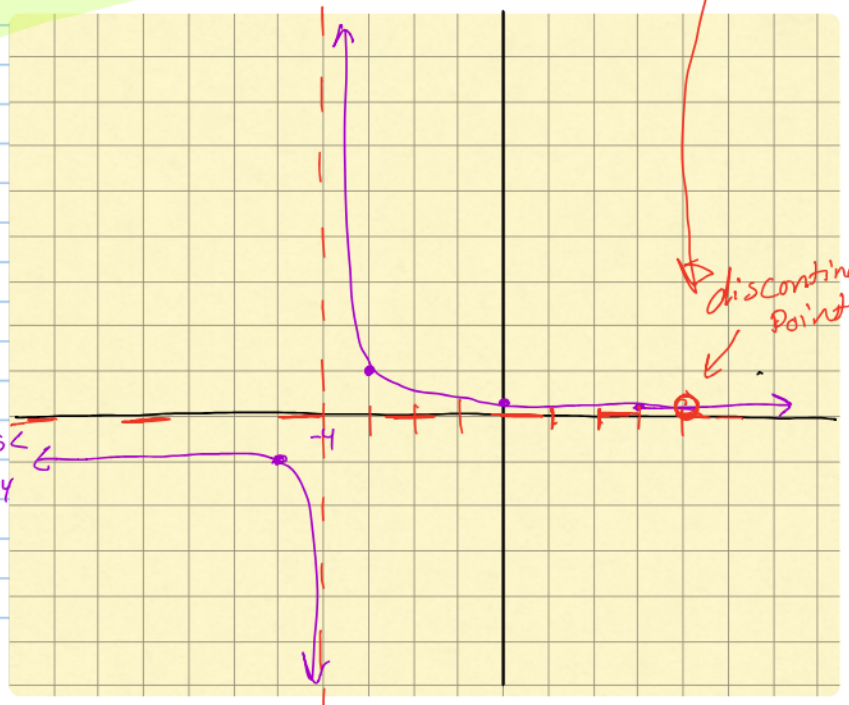
$$(0, 1/4)$$

Discontinuities

undefined points

$$(4, 1/8)$$

x	y
-5	-1
-3	1
0	$1/4 = 0.25$
3	$1/7 = 0.14$



Example

Sketch the graph of the rational function

$$m(x) = \frac{x^2-4}{x-2} \Rightarrow \frac{(x+2)(x-2)}{(x-2)} \Rightarrow x+2$$

$$D: \{x \in \mathbb{R} \mid x \neq 2\}$$

Vertical Asy: None

Horizontal Asy: None

Undefined $x = 2$

Discontinuities

undefined points

$$(2, 4)$$

