

Name:

Winter Break Graphs

Practice: $f(x) = \frac{x+1}{x^2-4} = \frac{x+1}{(x-2)(x+2)}$

- a. State the domain of f .

$\mathbb{R}, x \neq -2, 2$ VA

- b. Determine the end behavior of f .

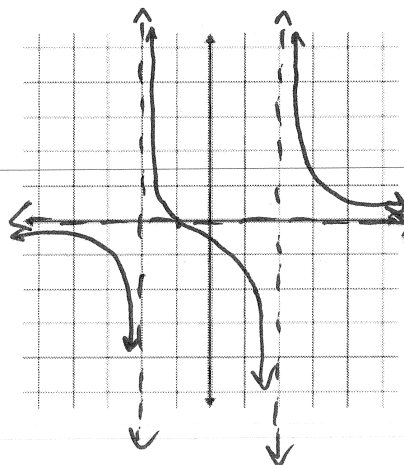
EBM: $y = \frac{x}{x^2} = \frac{1}{x}$

$x \rightarrow \infty f(x) \rightarrow 0$
 $x \rightarrow -\infty f(x) \rightarrow 0$ } HA

- c. State the horizontal AND vertical asymptotes of the graph of $y = f(x)$.

HA: $y = 0$

VA: $x = -2, 2$



- d. Graph the function on the graphing calculator and make a sketch on your paper.

Practice: $f(x) = \frac{-2x-4}{2x^2+4x+2} = \frac{-2x-4}{2(x^2+2x+1)} = \frac{-2x-4}{2(x+1)^2}$

- a. State the domain of f .

$\mathbb{R}, x \neq -1$

- b. Determine the end behavior of f .

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

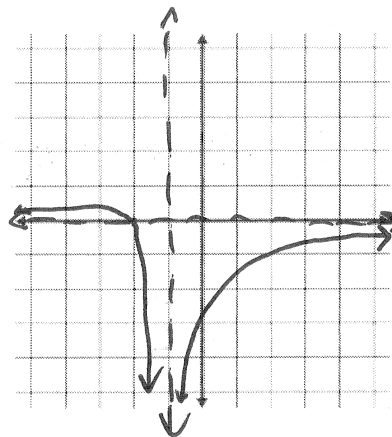
$x \rightarrow \infty f(x) \rightarrow 0$

$x \rightarrow -\infty f(x) \rightarrow 0$

- c. State the horizontal AND vertical asymptotes of the graph of $y = f(x)$.

HA: $y = 0$

VA: $x = -1$



- d. Graph the function on the graphing calculator and make a sketch on your paper.