

Calculus AB

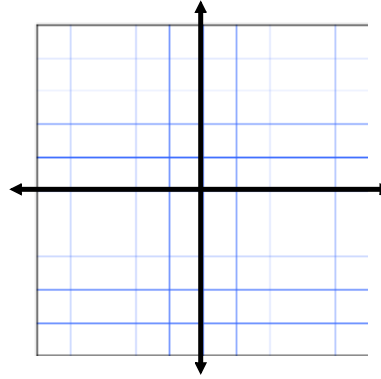
3-5

Limits at Infinity

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

domain:

range:



$$\lim_{x \rightarrow 0} \frac{1}{x} =$$

$$\lim_{x \rightarrow \infty} \frac{1}{x} =$$

$$\lim_{x \rightarrow -\infty} \frac{1}{x} =$$

Asymptote Rules - Given: $f(x) = \frac{p(x)}{q(x)}$

Vertical Asymptotes-

Hole -

Horizontal Asymptotes-

1)

2)

3)

Find the limit. (pg 205)

$$22) \lim_{x \rightarrow \infty} \frac{x^2 + 3}{2x^2 - 1}$$

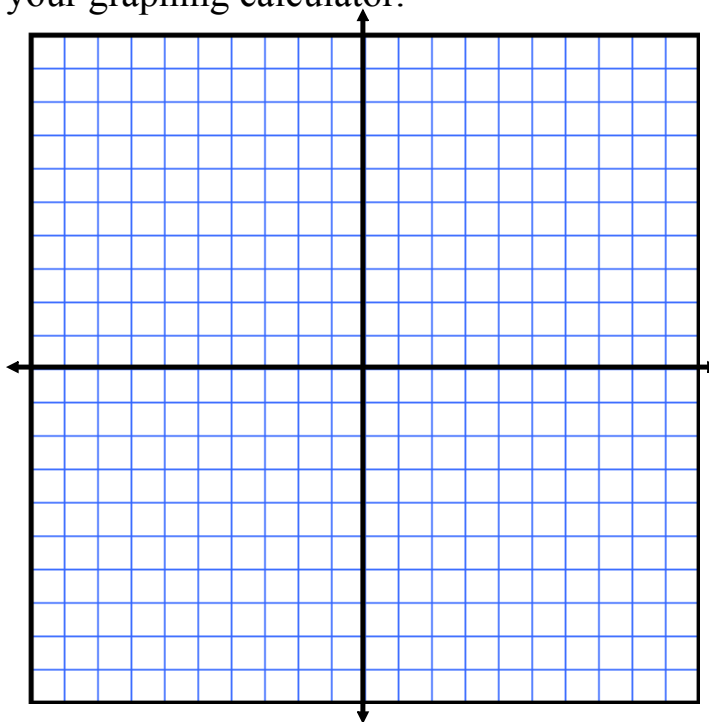
$$*) \lim_{x \rightarrow \infty} \frac{5 - x}{x^2 + 4}$$

$$*) \lim_{x \rightarrow -\infty} \frac{12x^3}{7x^2 + 13x + 3}$$

$$28) \lim_{x \rightarrow -\infty} \frac{x}{\sqrt{x^2 + 1}}$$

Sketch the graph of the equation. Look for extrema, intercepts, symmetry, and asymptotes as necessary. Check with your graphing calculator.

$$64) y = \frac{3x^2}{x^2 - 16}$$



Assignment:

Pg 205

1-6 all, 19 - 37 all, 59 - 83 odd.