

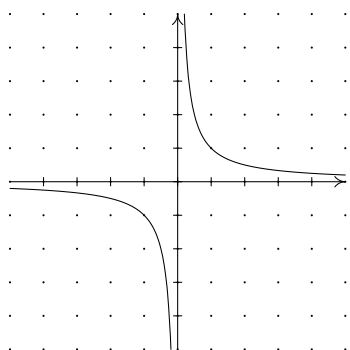
Overview

- Review reading assignment
- Review problems 1 - 8, Sect 2.2

Notes

Limits Running to Infinity

Example ($\lim_{x \rightarrow \infty} \frac{1}{x}$)



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

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

Notes

Horizontal Asymptotes

Definition (Horizontal Asymptote)

The line $y = b$ is a *horizontal asymptote* of the graph of the function $y = f(x)$ if either

$$\lim_{x \rightarrow \infty} f(x) = b \text{ or } \lim_{x \rightarrow -\infty} f(x) = b$$

Notes

Finding horizontal asymptotes

Method (Finding horizontal asymptotes)

- Evaluate $\lim_{x \rightarrow \infty} f(x)$ and $\lim_{x \rightarrow -\infty} f(x)$
- For each limit that exists, you have just found a horizontal asymptote.

Example ($f(x) = \frac{x}{\sqrt{x^2+1}}$)

- Graph the function on a graphing calculator.
- What happens as x gets very large?
- What happens as x gets very small?
- Confirm using the table capability of your calculator
- So what are your horizontal asymptotes?

Notes

Homework

Section 2.2 (page 76): (24 problems)

- | | | | | | | | |
|---|-------------|---|-------------|---|-------------|---|-------------|
| 1 | a b c | 3 | a b c | 5 | a b c | 7 | a b c |
| 2 | a b c | 4 | a b c | 6 | a b c | 8 | a b c |

Notes

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