Facts to Know:

\[ \lim_{x \to \infty} f(x) \] describes what happens to a function as \( x \) gets very large.

Finding the Limit from a Graph:

- Converges to value \( L \):

  - Diverges to infinity:

  - Diverges:

Rational Functions:

L’Hospital’s Rule:

- Indeterminate Forms:

  - If in an indeterminate form, \( \lim_{x \to \infty} = \)
Examples:

1. Calculate \( \lim_{x \to \infty} \frac{x^2 + 3x}{\sqrt{4x^4} - 3} \)

2. Use the graph of \( \arctan(x) \) to determine \( \lim_{x \to \infty} \arctan(x) \).

3. Calculate the limit \( \lim_{x \to \infty} \frac{x^2}{e^x} \).