MATH 2B/5B Prep: Limits at Infinity

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 $\displaystyle\lim_{x\to\infty} \frac{x^2 + 3x}{\sqrt{4x^4 - 3}}$

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

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