Flipped Calculus 1 at Binghamton

The Limit of a Function

Video

Section 1.5 in Stewart's Calculus.

Preclass Learning Objectives:

- The limit at an x-value describes the y-value the function “approaches” at that x-value.
- Graphical intuition for limits.
- Two-sided limits depend on both one-sided limits.

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Tangents, Derivatives, and Rates of Change

Video

Video

Section 1.4/2.1 in Stewart's Calculus.

Preclass Learning Objectives:

- A rate of change describes how one quantity changes in relation to another quantity.
- Rate of change can result from averaging over an interval or finding a limit of averages approaching a single point.
- Tangent lines result from the limit of secant lines.
- A derivative is an instantaneous rate of change.

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Limit Laws

Video

Video

Section 1.6 in Stewart's Calculus.

Preclass Learning Objectives:

- Algebraic limit laws.
- When direct substitution isn't allowable in calculating a limit try simplification, conjugation, or squeezing the function.

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Continuity

Video

Video

Video

Section 1.8 in Stewart's Calculus.

Preclass Learning Objectives:

- Graphical intuition of continuity.
- Where limits align with actual values, a function is continuous.
- Types of discontinuities.
- Algebraic limit laws.
- Continuous functions cannot jump (Intermediate Value Theorem).

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Laura Anderson and Joseph Brennan