Calculus Chapter 2

The Derivative as a Function

Section 2.2 in Stewart's Calculus.

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Differentiation Formulas

Video

Section 2.3 in Stewart's Calculus.

Preclass Learning Objectives:

- Derivative formulas for powers and roots.
- Derivative formulas for sums/differences/products/quotients.

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Trigonometric Derivatives

Video

Section 2.4 in Stewart's Calculus.

Preclass Learning Objectives:

- Familiarity with the limit of sin(x)/x as x approaches zero.

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The Chain Rule

Video

Section 2.5 in Stewart's Calculus.

Preclass Learning Objectives:

- Composition and rates of change.
- Chain Rule Formula.

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Implicit Differentiation

Video

Video

Section 2.6 in Stewart's Calculus.

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Preclass Learning Objectives:

- An equation implicitly defines many functions.
- Implicitly versus explicitly defined functions.
- Basics of Implicit Differentiation.

Rates of Change in the Sciences

Section 2.7 in Stewart's Calculus.

Preclass Learning Objectives:

- Instantaneous Rates of Change are everywhere!

Classroom Slides PDF

Video

Related Rates

Video

Video

Section 2.8 in Stewart's Calculus.

Preclass Learning Objectives:

- Rates of change can be found by implicitly differentiating an equation. This technique is useful in obtaining information in natural, less mathematical, settings.

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Linearization and Differentials

Video

Video

Section 2.9 in Stewart's Calculus.

Preclass Learning Objectives:

- Lines are functions, even tangent lines.
- Linearization of a function f(x) approximates the values of f(x).
- The change along the y-axis can be approximated with linearization.

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