Acc Calculus Unit 8 Integration Techniques, L'Hopital's Rule

Content Area: **Math**
Course(s): **Accelerated Calculus**
Time Period: **Marking Period 4**
Length: **5 weeks**
Status: **Published**

Unit Overview

In this unit, we expand our list of basic integrals by exploring integration by parts. We will also use L'Hopital's Rule to evaluate a limit when direct substitution produces an indeterminate form.

Enduring Understandings

- Certain integration techniques and rules apply to different integrals, and recognizing which techique is convenient in a given situation is important.
- Integration by parts allows you to find integrals of a number of different functions, including many whose integrands include products of algebraic and transcendental functions.
- L'Hopital's Rule allows you to evaluate limits of many rational expressions that previously you could not, as well as evaluate limits that result in other indeterminate forms.

Essential Questions

- What is integration by parts and when is it used?
- How do you evaluate a limit when direct substitution produces an indeterminate form?

New Jersey Student Learning Standards (No CCS)

N/A

Interdisciplinary Connections

LA.W.9-10.6	Use technology, including the Internet, to produce, share, and update individual or shared writing products, taking advantage of technology's capacity to link to other information

	and to display information flexibly and dynamically.
SCI.HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.

Technology Standards

TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.
TECH.8.1.12.D.CS3	Exhibit leadership for digital citizenship.
TECH.8.1.12.E.CS4	Process data and report results.
TECH.8.1.12.F.CS3	Collect and analyze data to identify solutions and/or make informed decisions.
TECH.8.1.12.F.CS4	Use multiple processes and diverse perspectives to explore alternative solutions.
TECH.8.2.12.C.CS2	The application of engineering design.

21st Century Themes/Careers

CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.

Financial Literacy Integration

PFL.9.1.12.C.1	Compare and contrast the financial benefits of different products and services offered by a variety of financial institutions.
PFL.9.1.12.C.2	Compare and compute interest and compound interest and develop an amortization table using business tools.
PFL.9.1.12.C.3	Compute and assess the accumulating effect of interest paid over time when using a variety of sources of credit.