



Marietta City Schools
2023–2024 District Unit Planner

AP Calculus BC

Unit title	MHS Unit 8 AP Unit 10: Infinite Sequences & Series	Unit duration (hours)	5 weeks
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Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GA DoE Standards

Standards

- 10.1 Defining convergent and divergent infinite series
- 10.2 Working with geometric series
- 10.3 The nth term test for divergence
- 10.4 Integral test for convergence
- 10.5 Harmonic series and p-series
- 10.6 Comparison tests for convergence
- 10.7 Alternating series test for convergence
- 10.8 Ratio test for convergence
- 10.9 Determining absolute or conditional convergence
- 10.10 Alternating series error bound
- 10.11 Finding Taylor polynomial approximations of functions
- 10.12 Lagrange error bound
- 10.13 Radius and interval of convergence of power series
- 10.14 Finding Taylor or Maclaurin series for a function
- 10.15 Representing functions as power series

Concepts/Skills to support mastery of standards

- Defining convergent and divergent infinite series
- Working with geometric series
- The nth term test for divergence
- Integral test for convergence

- Harmonic series and p-series
- Comparison tests for convergence
- Alternating series test for convergence
- Ratio test for convergence
- Determining absolute or conditional convergence
- Alternating series error bound
- Finding Taylor polynomial approximations of functions
- Lagrange error bound
- Radius and interval of convergence of power series
- Finding Taylor or Maclaurin series for a function
- Representing functions as power series

Vocabulary

Convergence, divergence, partial sum, nth term test, integral test, harmonic series, p-series, alternating series, ratio test, absolute convergence, conditional convergence, alternating series error bound, Taylor polynomial, Lagrange error bound, radius of convergence, interval of convergence, power series, Maclaurin series

Notation

Essential Questions

How do you determine if an infinite series converges or diverges?
 How do you approximate functions as a polynomial?
 How do you represent a function as a power series?

Assessment Tasks

List of common formative and summative assessments.

Formative Assessment(s):

Notebook, HW Quizzes, AP Classroom Progress Checks

Summative Assessment(s):

Unit Assessment

<p style="text-align: center;"><u>Learning Experiences</u></p> <p style="text-align: center;">Add additional rows below as needed.</p>		
Objective or Content	Learning Experiences	Personalized Learning and Differentiation
10.10 Alternating series error bound 10.12 Lagrange error bound	Mixed Six activity for Error Bounds <ol style="list-style-type: none"> 1. Factual recall 2. Carry out a procedure 3. Classify a mathematical object 4. Prove, show, justify 5. Extend a concept 6. Critique a fallacy 	Collaborative groups Technology: desmos, graphing calculators, if desired.
<p style="text-align: center;">Content Resources</p>		
<ul style="list-style-type: none"> ● AP Classroom (within AP Central, collegeboard.org) AP Daily videos, progress checks ● Calculus textbook: Calculus, 11e, Larson & Edwards ● Tony Record (Avon HS) created resources ● flippedmath.com ● Khan Academy ● Delta Math ● Master Math Mentor (pdf files and videos) ● Teacher created resources 		