



Marietta City Schools
2024–2025 District Unit Planner

AP Calculus BC

Unit title	Unit 1: Limits & Continuity	Unit duration (hours)	10 - 15 hours
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Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GA DoE Standards

Standards

- 1.1 Introducing Calculus: Can change occur at an instant?
- 1.2 Defining limits and using limit notation
- 1.3 Estimating limit values from graphs
- 1.4 Estimating limit values from tables
- 1.5 Determining limits using algebraic properties of limits
- 1.6 Determining limits using algebraic manipulation
- 1.7 Selecting procedures for determining limits
- 1.8 Determining limits using the Squeeze Theorem
- 1.9 Connecting multiple representations of limits
- 1.10 Exploring types of discontinuities
- 1.11 Defining continuity at a point
- 1.12 Confirming continuity over an interval
- 1.13 Removing discontinuities
- 1.14 Connecting infinite limits and vertical asymptotes
- 1.15 Connecting limits at infinity and horizontal asymptotes
- 1.16 Working with the Intermediate Value Theorem (IVT)

Concepts/Skills to support mastery of standards

- Introducing Calculus: Can change occur at an instant?
- Defining limits and using limit notation

- Estimating limit values from graphs
- Estimating limit values from tables
- Determining limits using algebraic properties of limits
- Determining limits using algebraic manipulation
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Vocabulary

Instantaneous rate of change	limit	One sided limit	Types of discontinuities
continuity	asymptotes	Intermediate value theorem	

Notation

$$\frac{\Delta y}{\Delta x} \quad \lim_{x \rightarrow c} f(x) = L \quad \lim_{x \rightarrow c^-} f(x) = L \quad \lim_{x \rightarrow c^+} f(x) = L$$

Essential Questions

Can change occur at an instant?

How does knowing the value of a limit, or that a limit does not exist, help you to make sense of interesting features of functions and their graphs?

How do we close loopholes so that a conclusion about a function is always true?

Assessment Tasks

List of common formative and summative assessments.

Formative Assessment(s):

Homework Quizzes

Summative Assessment(s):

Unit 1 Assessment

Learning Experiences

Objective or Content	Learning Experiences	Personalized Learning and Differentiation
1.9 Connecting multiple representations of limits 1.10 Exploring types of discontinuities 1.11 Defining continuity at a point 1.12 Confirming continuity over an interval 1.13 Removing discontinuities	CalcMedic - Unit 1 - Day 8 - Card sort Students will use the Card Sort: Connecting multiple representations of limits to review and connect limits and continuities on a graph, equation, and verbal description.	Collaborative groups Technology: desmos, graphing calculators, if desired. Some criteria could be removed based on student needs/timing.

Content Resources

- AP Classroom (within AP Central, collegeboard.org)
- Calculus textbook: Calculus, 11e, Larson & Edwards
- Tony Record (Avon HS) created resources
- www.flippedmath.com
- Khan Academy
- Delta Math
- Master Math Mentor (pdf files and videos)
- CalcMedic investigations
- Teacher created resources