



Marietta City Schools
2025–2026 District Unit Planner

AP Precalculus

Unit title	Unit 4- Functions involving Parameters, Vectors, and Matrices & Exam Review	Unit duration (hours)	<i>15 hours</i>
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Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GA DoE Standards

Standards

4.8: Vectors:

- 4.8.A: Identify Characteristics of a vector.
 - 4.8.B: Determine Sums and Products Involving vectors.
 - 4.8.C: Determine a unit vector for a given vector.
 - 4.8.D: Determine angle measures between vectors and magnitudes of vectors involved in vector addition.
- All AP topics

Concepts /Skills to support mastery of standards:

- 2.A Identify information from graphical, numerical, analytical, and verbal representations to answer a question or construct a model, with and without technology.
- 3.A Describe the characteristics of a function with varying levels of precision, depending on the function representation and available mathematical tools.
- 3.B Apply numerical results in a given mathematical or applied context.
- 3.C Support conclusions or choices with a logical rationale or appropriate data.

Vocabulary

Magnitude, Scalar, Direction, Vector, Standard form, Component form, Tip to Tail Method, Parallelogram Method, Dot product, Orthogonal vectors, Unit vector, Linear combination, Law of sines, Law of cosines.

Notation

$v = \langle a, b \rangle, ||v||$

Essential Questions

- How are vectors and scalars similar and different?
- How can I use vector operations to model, solve, and interpret real-world problems?
- How can I represent addition, subtraction, and scalar multiplication of vectors geometrically?
- How do geometric interpretations of addition, subtraction, and scalar multiplication of vectors help me perform computations efficiently?
- What are some different ways to add two vectors, and how are these representations related?

Assessment Tasks

List of common formative and summative assessments.

Formative Assessment(s): Quick Checks, TOTD

Summative Assessment(s): Common Unit Assessment (4.8)

AP Exam Practice (MC Practice- FRQ Practice- AP released Questions)

Learning Experiences

Add additional rows below as needed.

Objective or Content	Learning Experiences	Personalized Learning and Differentiation
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<p>PC.AGR.6</p> <p>AP 4.8</p>	<p>Vector Voyage - In this learning plan, students will be introduced to the concept of a vector and see that vectors that can be represented in component form or magnitude-direction form. Students will describe advantages and disadvantages of each form when performing various operations and should become skilled at converting from one form to another. Students will use vectors to describe real-life scenarios such as dog walking routes and drone flights</p>	
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Content Resources

<p>Math Medic</p> <p>AP Classroom</p>
