

Family Friendly Math

GUIDE FOR PRE-CALCULUS

Log on to the [SC Department of Education website](#), for the complete standards.

In Pre-Calculus (PC) students study piecewise, rational, radical, exponential, logarithmic and trigonometric functions, polar coordinates, conic sections, vectors and matrices. Mathematical modeling, computer algebra systems and spreadsheets are used to address the standards.

Prerequisite courses: Geometry with Statistics>Algebra 1>Algebra 2 with Probability

DATA, PROBABILITY, AND STATISTICAL REASONING

The Data, Probability, and Statistical Reasoning (DPSR) strand is not addressed in Pre-Calculus.

MEASUREMENT, GEOMETRIC, AND SPATIAL REASONING

Pre-Calculus students will analyze conic sections and polar coordinates. Students will solve problems with trigonometric expressions and functions.

- Identify, graph and analyze the actions of conic sections and polar coordinates.
- Determine the area of a triangle to solve problems.
- Prove and apply the Law of Sines and the Law of Cosines.
- Derive the formulas for the length of an arc and the areal of a sector in a circle.
- Define the six trigonometric ratios.
- Explain symmetry (odd and even) and periodicity of trigonometric functions.

NUMERICAL REASONING

Pre-Calculus students extend their knowledge of matrices.

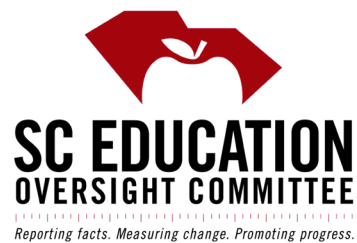
- Identify the identity and zero matrices for any dimension.
- Find the additive and multiplicative inverses of square matrices.
- Explain the role of the determinant of a square matrix.
- Represent, find and manipulate vectors.
- Represent complex numbers on the complex plane in rectangular and polar form.
- Represent addition, subtraction, multiplication and conjugation of complex numbers on the complex plane.

PATTERNS, ALGEBRA, AND FUNCTIONAL REASONING

Pre-Calculus students study piecewise, rational, radical, exponential, logarithmic and trigonometric functions.

- Build new functions from existing functions.
- Explore and analyze the behaviors of rational and piecewise functions.
- Explore and analyze exponential and logarithmic functions.
- Explore and analyze trigonometric functions.
- Represent data with matrices.
- Represent a system of linear equations as a single matrix equation in a vector variable.

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The South Carolina Education Oversight Committee (EOC) is an independent, nonpartisan group of 18 educators, business people, and elected officials appointed by the legislature and governor. The EOC enacts the South Carolina Education Accountability Act of 1998, which sets standards for improving the state's K-12 educational system. The EOC reviews the state's education improvement process, assesses how schools are doing, and evaluates the standards schools must meet to build the education system needed to compete in this century.