

TRIGONOMETRY/ PRECALCULUS

Grade: 11, 12

Credit: 1.0 (NCAA approved)

Prerequisite: Algebra 1, Algebra 2, Geometry

The Trigonometry/ Pre-calculus course is designed for the college-bound student. Trigonometric topics include graphing, analyzing, and applying the six trigonometric functions. Scientific calculators and/or graphing calculators are integrated throughout the course. The Pre-calculus section, as its name indicates, is designed to prepare you for Calculus. Topics include understanding functions from symbolic, tabular, and graphical perspectives, transformations and function composition, polynomial functions, rational polynomial functions, trigonometry, and conic sections. In addition to content mastery, the course goals are to further develop students' problem solving and critical thinking skills. The difficulty level of the material increases significantly throughout the course. Students should be prepared to be challenged and work hard.

Trigonometry – Pre-Calculus Lessons

Teacher Message

Lesson 1: Introduction to Trig; Degrees, Minutes, and Seconds; Degrees and Radians

Lesson 2: The Six Functions; The Unit Circle and Polar Coordinates; Tangent and other Undefined Values

Lesson 3: Reciprocal Identities; Ratio Identities; Pythagorean Identities; Negative Angle Identities

Lesson 4: Double Angle Identities

Lesson 5: Inverse Trigonometric Functions; Domain of Inverse Trigonometric Functions; Conditional Equations

Lesson 6: Graphs of Trigonometric Functions; Graphs of Inverse Trigonometric Functions; Understanding the Form $y=Asin(Bx+C)+D$; Modeling Periodic Data



Lesson 7: Oblique Triangles; Law of Sines; Law of Cosines; The Ambiguous Case; Area of a Triangle

Lesson 8: Complex Numbers and Graphing; Complex Numbers Polar Form; Operations on Complex Numbers; De Moivre's Theorem

Lesson 9: Vectors; Vector Addition; Aviation Problems

Lesson 10: Trigonometry Review

Lesson 11: Algebra 2 Review

Lesson 12: Graphing Polynomials

Lesson 13: Graphing Rational Functions

Lesson 14: Solving Polynomial Equations

Lesson 15: Review - Polynomials and Rationals

Lesson 16: Graphing Exponential and Logarithmic Functions

**Lesson 17: Exponential and Logarithmic Equations
Learning Objectives**

Lesson 18: Logarithmic and Exponential Regressions

Lesson 19: Review - Exponentials and Logarithms

Lesson 20: Conic Sections Part 1

Lesson 22: Graphing with Transformations

Lesson 23: Vectors

Lesson 24: Parametric Equations

Lesson 25: Review - Conic Sections, Transformations, Vectors, Parametric Equations

Lesson 26: Sequences and Series

Lesson 27: The Binomial Theorem and Pascal's Triangle

Lesson 28: Mathematical Induction



Lesson 29: Limits

Lesson 30: Review - Sequences and Series, Binomial Theorem, Pascal's Triangle, Mathematical Induction, and Limits

