



## Online Courses for High School Students

1-888-972-6237

### Pre-Calculus\*

#### **COURSE DESCRIPTION:**

This course is designed to go through the major topics of Pre-Calculus and to prepare students to move on to Calculus. After completing this course students will understand polynomial functions, polar coordinates, complex numbers, conic sections, exponential functions, logarithmic functions, sequences and series.

#### **COURSE OBJECTIVES:**

After completing the course, students will be able to:

- Understand the major topics in Pre-Calculus
- Identify how the major Pre-Calculus topics relate to real world situations
- Apply the topics in Pre-Calculus to various problems
- Explain how Pre-Calculus is used within the greater context of mathematics

**PREREQUISITES:** Trigonometry

**COURSE LENGTH:** One semester

**REQUIRED TEXT:** None

#### **COURSE OUTLINE:**

Polynomial Functions

- Polynomial Functions
- Quadratic Functions
- Roots of Polynomial Equations
- Partial Fractions and Radical Equations

Polar Coordinates and Complex Numbers

- Polar Coordinate System
- Polar and Rectangular Form
- Operations with Complex Numbers
- Polar Form of Complex Numbers

Conics

- Circles
- Ellipses
- Hyperbolas
- Parabolas

Exponential and Logarithmic Functions

- Exponential Functions
- Logarithmic Functions
- Modeling with Logarithmic Functions

Sequence and Series

- Arithmetic Sequences and Series
- Geometric Sequences and Series
- Infinite Sequences and Series
- Limit