

Waccamaw High School
2017-2018
Pre-Calculus Honors Pacing Guide

Textbook:

Pre-calculus, R. Blitzer
Publisher: Pearson Prentice Hall
Webcode: aze-0643

Learning Objectives:

SC Department of Education
Pre-calculus Standards

First Quarter

- I. Review of Fundamentals: Chapters P, 1, 2**
 - A. Notation
 - B. Exponents and radicals
 - C. Linear functions
 - D. Quadratic functions
 - E. Use of the graphing calculator

- II. Analyzing Functions: Chapter 1**
 - A. Characteristics of functions
 - B. Graphs of functions
 - 1. Symmetry
 - 2. Increasing & decreasing intervals
 - 3. Parent functions and their transformations
 - C. Slope and rates of change
 - D. Combining functions; Compositions
 - E. One-to-One functions; Inverse functions
 - F. Real-world modeling using functions

Second Quarter

- III. Polynomial Functions: Chapter 2**
 - A. The complex number system
 - B. Polynomial functions and their graphs
 - C. Dividing (factoring) polynomials
 - D. Finding zeroes of polynomials: The Fundamental Theorem of Algebra
 - E. Modeling and solving problems using polynomial equations

- IV. Rational & Radical Functions: Chapter 2**
 - A. Characteristics of rational functions and their graphs
 - B. Characteristics of radical functions and their graphs
 - C. Solving rational and radical equations

- V. Exponential Functions: Chapter 3**
 - A. Evaluating exponential functions
 - B. Identifying characteristics and graphing exponential functions
 - C. Definition of the natural base, e
 - D. Applications of exponential functions

- VI. Logarithmic Functions: Chapter 3**
 - A. Definition of logarithm
 - B. Translating between exponential and logarithmic forms
 - C. Evaluating log expressions
 - D. Laws (properties) of log expressions

- VII. Exponential Equations & Modeling: Chapter 3**
 - A. Solving exponential equations
 - B. Solving logarithmic equations
 - C. Real-world modeling with exponential & logarithmic functions

Third Quarter

- VIII. Trigonometric Functions of Angles: Chapters 4, 6 (Partial)**
 - A. Right Triangle Trigonometry (4.3, 4.8)
 - 1. Trigonometric ratios
 - 2. Trigonometric functions
 - B. Laws of Sines and Cosines (6.1, 6.2)
 - C. Solving application problems using trigonometry
 - D. Calculating area of triangles given SAS or SSS measures

- IX. Trigonometric Functions of Real Numbers: Chapter 4 (Partial)**
 - A. Angle measurement (4.1, 4.4)
 - 1. Converting between degrees and radians
 - 2. Measuring arcs and angles
 - B. The Unit Circle (4.2)
 - C. Trigonometric functions of real numbers (4.2, 4.4)
 - 1. Finding coterminal angles
 - 2. Using reference angles
 - D. Trigonometric graphs
 - 1. Sine and cosine (4.5)
 - 2. Other graphs (4.6)

- X. Analytic Trigonometry: Chapter 5**
 - A. Verifying trigonometric identities
 - B. Sum & difference formulas
 - C. Double-angle, half-angle and product-sum formulas
 - D. Inverse trigonometric functions (4.7)
 - 1. Evaluating ratios or expressions
 - 2. Graphing
 - E. Solving trigonometric equations

Fourth Quarter

XI. Vectors & Matrices: Chapters 6, 8 (Partial)

A. Vectors (6.6, 6.7, 8.3)

1. Identify magnitude and direction
2. Identify the components of a vector
3. Perform operations on vectors
4. Model quantities with vectors, such as velocity

B. Matrices (8.1, 8.3)

5. Perform operations on matrices
6. Model and solve systems of linear equations
7. Use matrices to represent transformations

XII. Other Topics in Analytic Geometry: Chapters 6, 9 (Partial)

A. Polar coordinates

1. Graphing or identifying locations
2. Converting between polar and rectangular forms

B. Graphs of polar equations

C. Use polar coordinates to represent complex numbers

D. Graph & write equations of conic sections

Note: *The SC Department of Education Pre-calculus curriculum includes a number of process standards which can only be evaluated in a holistic manner considering the student's overall performance in the class. In addition, certain standards will be addressed in every unit as they apply to all the types of functions studied in this course. Therefore, mastery of these standards will be determined at the end of the course.*