PreCalculus Outline Shelia Horne CATA High School

Chapter Prerequisite (P4) 3 days

Solving Equations Algebraically and Graphically

Chapter 1 Functions and Their Graphs (1.1 to 1.5) 8 days

Functions
Graphs of Functions
Shifting, Reflecting, and Stretching Graphs
Combinations of Functions
Inverse Functions
Applications

Chapter 2 Polynomial and Rational Functions (2.1 to 2.7) 10 days

Quadratic Functions
Polynomial Functions of Higher Degree
Real Zeros of Polynomial Functions
Complex Numbers
The Fundamental Theorem of Algebra
Rational Functions and Asymptotes
Graphs of Rational Functions
Applications

Chapter 3 Exponential and Logarithmic Functions (3.1 to 3.5) 11 days

Exponential Functions and Their Graphs
Logarithmic Functions and Their Graphs
Properties of Logarithms
Solving Exponential and Logarithmic Equations
Exponential and Logarithmic Models (include logistic and greatest integer)
Sets of data to model linear, polynomial, exponential, trig, power, logistic, and logarithmic

Chapter 4 Trigonometric Functions (4.1 to 4.8) 8 days

Radian and Degree Measures
Trigonometric Functions: The Unit Circle
Right Triangle Trigonometry
Trigonometric Functions of Any Angle
Graphs of Sine and Cosine Functions
Graphs of Tangent, Cotangent, Secant and Cosecant Functions
Inverse Trigonometric Functions
Applications

Chapter 5 Analytic Trigonometry (5.1 to 5.3) 5 days

Using Fundamental Trigonometric Identities
Verifying Trigonometric Identities
Solving Trigonometric Equations

Chapter 6 Additional Topics in Trigonometry (6.1, 6.2, supplement) 6 days

Law of Sines/Cosines
Vectors in the Plane (book will not be used)
Application (book will not be used)

Chapter 9 Sequences and Series (supplement) 6 days

Sequences and Series (The formulas in the book will not be used.)
Arithmetic Sequences and Partial Sums
Geometric Sequences and Series
Sum of finite and infinite
Series converge or diverge
Recursive to/from explicit

Chapter 10 Conics (10.1 to 10.3, 10.5 to 10.8) 10 days

Graphing Conic Sections - Parabola/Ellipse/Hyperbola/(Circle)
Parametric Equations
Polar Equations and Graphs
Polar Conics Equations and Graphs

Chapter 12 Limits and an Introduction to Calculus (12.1 to 12.4) 10 days

Introduction to Limits
Techniques for Evaluating Limits
The Tangent Line Problem
Limits of Infinity

Review/Exams 7 days/5 days

NOTE: All of the above subject to change. Order of topics in each chapter may vary.

How to Study PreCalculus

1. Read the book. It was written for you and is very readable.
2. Work together in teams outside of class; students are extremely good at explaining mathematical ideas to one another in terms that they understand.
3. Attacking problems in teams is not only a good learning strategy; it is also the way that people in science, engineering, business and other fields function in the real world.
4. Ask questions in class.
5. Feel free to suggest your own interpretations. Many of the problems can be approached in very different ways, and different students (and instructors) are likely to come up with different solutions depending on their viewpoint.
6. Talk to your instructor during office hours if you need help.
7. If you are using a graphing calculator, carry it to class and use it to aid in a graphical dimension to whatever you are studying.
8. Realize that the most powerful and effective tool you have is your mind; it does things no machine is capable of doing: thinking, understanding, creating, and interpreting.