



Experiential education for young people promoting the natural world
and the betterment of human character.

Fall Semester Pre-Calculus

To be completed by the Student and their Pre-Calculus Teacher

Student's Name: _____ Semester attending OA: _____

Pre-Calculus Teacher's Name: _____

Pre-Calculus Teacher's Signature: _____

Phone Number: _____ Fax Number: _____

Email address: _____

To the teacher: The topics below are those usually offered in this course at OA. Please check the topics that align with your class and write in any additional topics needed under each unit. Specific examples and assessment questions are also very helpful and may be attached to this form. Thank you so much for your time! This will help us ensure a smooth transition for your student between our schools.
**Prerequisite topics include powers, roots, radicals, linear equations, exponential and logarithmic functions, rational equations and functions, quadratic relations, and conic sections.*

Name of Course: _____

Textbook used for this course: _____ Edition: _____

Publisher: _____

Unit 1: Linear Relations and Functions

- Relations and Functions
 - Composition of Functions
 - Graphing and Writing Linear Equations
 - Piecewise Functions
 - Solving Systems of Equations
 - Two Variable
 - Three Variable
 - Additional Topics: *(Examples of extra topics include: Matrices, Inequalities)*
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Unit 2: The Nature of Graphs

- Parent Graphs
 - Translations
 - Inverse Functions and Relations
 - Continuity and End Behavior
 - Types of Discontinuity
 - Critical Points and Extrema
 - Graphs of Rational Functions
 - Vertical and Horizontal Asymptotes
 - Slant Asymptotes
 - Holes
 - Additional Topics: *(Nonlinear Inequalities, Direct and Inverse Variation)*
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Unit 3: Polynomial and Rational Functions

- Review Polynomial and Quadratic Functions
 - Fundamental Theorem of Algebra
 - Graphing
 - Three Forms of Quadratics
 - Complex Numbers in the Quadratic Formula and Factoring
 - The Remainder and Factor Theorems
 - Synthetic Division
 - Rational Root Theorem
 - Descartes' Rule of Signs
 - Locating Zeros
 - Upper and Lower Bound Theorems
 - Solving Rational Equations and Partial Fractions
 - Solving Radical Equations
 - Additional Topics Needed: (*Rational Inequalities, Radical Inequalities*)
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Unit 4: Introduction to Trigonometry

- Angles
 - Degree Measure
 - Radian Measure
 - Linear vs. Angular Velocity
 - Trigonometric Ratios in Right Triangles
 - Definitions
 - Reciprocal Identities
 - Quotient Identities
 - Solving Right Triangles
 - Real World Applications
 - Development of the Unit Circle
 - Additional Topics Needed: _____
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Unit 5: Trigonometry

- Basic Trigonometric Identities
 - Pythagorean Identities
 - Symmetric Identities
 - Even and Odd Identities
 - Verifying Trigonometric Identities
 - Sum and Difference Identities
 - Graphing Trigonometric Functions
 - Sine, Cosine, Tangent, and their Inverses
 - Amplitude and Period
 - Translations
 - Additional Topics Needed: (*Application of Trigonometric Graphs, Additional Trigonometric Identities*)
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Please list any additional concepts needed that do not fit into the units above:

Please return this form to our office AS SOON AS POSSIBLE. We are unable to guarantee any curriculum needs at OA without completed academic forms.

**Form may be mailed to: The Outdoor Academy
43 Hart Road, Pisgah Forest, NC 28768
Faxed to: (828)884-2788 or Emailed to: admissions@enf.org**