

**Summer at Case
Equinox Program 2008
Precalculus Honors
(Individually Paced)**

Course Description

The purpose of this course is to allow students to work independently to cover an entire year's curriculum for a Precalculus Honors course. Working independently allows the student to master as much of the subject as possible in three weeks. Independent work will be accompanied by individual assessment and activities challenging to a student in Precalculus Honors. Use of a graphing calculator is highly encouraged to further the student's understanding of its capabilities.

Individualized instruction concentrates on the areas students have not yet mastered. Courses are three weeks long, with five hours of in-class work for five days a week (75 hours total class time). Daily outside homework is required.

Proficiency and thorough understanding of material are major concerns of this course. Students work through honors level material and are expected to score at least 70% on chapter tests before they move on to a new topic. Students diagnosed as having incomplete proficiency in specific areas continue working on those areas with individualized instruction until they demonstrate proficiency.

Precalculus Honors meets the latest National Council of Teachers of Mathematics (NCTM) standards. Students will have the opportunity to complete a full year's high school honors level course in Precalculus. Students and parents are encouraged to check whether their own schools accept the completion of CTD coursework as credit for acceleration.

Expectations

Each student is expected to come ready to explore new topics and work through the material at a comfortable pace with emphasis on being on an honors track. Students are expected to seek out help and be able to pose questions detailing the area of difficulty. Daily homework outside of class should be given full attention to supplement the class time covering all the necessary sections.

Resources and Materials

Precalculus Enhanced with Graphing Utilities, 4th Edition, Sullivan. 2006

Student Evaluation and Grading Policies

In addition to a teacher-written final evaluation, the student receives a letter grade for each semester completed.

Grading Scale

A+	100-97%	A	96-93%	A-	92-90%
B+	89-87%	B	86-83%	B-	82-80%
C+	79-77%	C	76-73%	C-	72-70%
D+	69-67%	D	66-63%	D-	62-60%
F	below 60%				

Grade Breakdown

The final exam counts as 20% and the exams for that semester account for the other 80%.

Schedule

Precalculus Honors is a self-paced advanced mathematics course that allows each student to progress according to his or her own strengths. Consequently, the topics covered each day--as well as the allotted time periods--will vary from one student to another. The role of the teacher and the TA will be to ensure that each student is making efforts to move ahead in the curriculum, complete the units accompanying assignments, and grow in their math and team skills.

Test 1: Appendix A1-A9 and Sections 1.1, 1.2

Algebra & Geometry review, rectangular coordinates, graphs of equations

Test 2: Sections 1.3, 1.4, 1.5, 2.1, 2.3, 2.4, 2.5

Lines & linear functions, circles, characteristics and properties of functions

Test 3: Sections 2.6, 2.7, 3.1, 3.2, 3.3, 3.4

Transformations on functions, constructing mathematical models, quadratic, polynomial, and rational functions

Test 4: Sections 3.6, 23.7, 4.1, 4.2, 4.3, 4.4

Real and complex zeros of a polynomial, composite functions, inverse functions, exponential and logarithmic functions

Test 5: Sections 4.5, 4.6, 4.7, 4.8, 5.1, 5.2

Properties of logarithms, exponential and logarithmic equations, exponential and logarithmic mathematical models, angle measures and trigonometry on the unit circle

Test 6: Sections 5.3, 5.4, 5.5, 5.6, 6.1, 6.2

Graphs of trigonometric functions, inverse trigonometric functions

End of 1st semester material; 1st semester final

Test 7: Sections 6.3, 6.4, 6.5, 6.6, 6.7, 6.8

Trigonometric identities and equations

Test 8: Sections 7.1, 7.2, 7.3, 7.4, 7.5, 8.1

Right triangle trigonometry, law of sines, law of cosines, area of triangles, harmonic motion, polar coordinates

Test 9: Sections 8.2, 8.3, 8.4, 8.5, 8.6, 8.7

Polar graphs, the complex plane, DeMoivre's Theorem, vectors, dot products and cross products

Test 10: Sections 9.2, 9.3, 9.4, 9.7, 10.1, 10.2

Parabolas, ellipses, hyperbolas, parametric equations, algebraic and matrix solutions of systems of linear equations

Test 11: Sections 10.3, 10.4, 10.5, 10.6, 10.7, 10.8

Matrices and determinants, partial fraction decomposition, nonlinear systems of equations, systems of inequalities, linear programming

Test 12: Sections 11.1, 11.2, 11.3, 11.4

Arithmetic sequences and series, geometric sequences and series, mathematical induction

Test 13: Sections 11.5, 12.1, 12.2, 12.3

Set notation, counting principles, permutations, combinations, theoretical probability

End of 2nd semester material; 2nd semester final

Optional/Encouraged:

Chapter 13: limits, derivatives, and integrals

Sections 9.5, 9.6: rotations of axes of conic sections, polar equations of conic sections

SAMPLE

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