

Pre-Calculus*

Course Syllabus



Supervising Teacher

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Course Description:

Pre-Calculus **2 semesters** **2 credits** **Grades 11 -12**
Pre-requisites: C or better in Algebra 2. This course is an extension of Algebra 1 for better understanding and application of basic algebraic skills. Emphasis is on systems of equations, polynomials, and quadratic functions and their solutions.

**Successful completion of Algebra 2 required for enrollment.*

Pre-Calculus TOP PICKS

HARCOURT-HOLT Option

This is a general curriculum for students that learn well from textbooks.

- HARCOURT - HOLT Pre-Calculus: A Graphing Approach to Calculus SE 2006 Edition I-DEA TOP PICK (0000025860) - *Student textbook, required for this option*
- HARCOURT - HOLT Pre-Calculus: A graphing Approach to Calculus TE 2006 Edition I-DEA TOP PICK (0000025861) - *Teacher textbook, required for this option*
- HARCOURT - HOLT Pre-Calculus: A graphing Approach to Calculus Solutions Key 2006 Edition I-DEA TOP PICK (0000032160) - *Worked out solutions for each problem*
- HARCOURT - HOLT Pre-Calculus: A graphing Approach to Calculus Solutions Key 2006 Edition I-DEA TOP PICK (0000032160) - *Guides the student in the routine use of a graphing calculator*

MCGRAW-HILL - GLENCOE Option

This is a curriculum that are at, above, or below grade level.

- MCGRAW-HILL - GLENCOE Advanced Mathematical Concepts: Pre-Calculus with Applications SE (0000025876) - *Student textbook, required for this option*
- MCGRAW-HILL - GLENCOE Advanced Mathematical Concepts: Pre-Calculus with Applications SE (0000025877) - *Teacher textbook, required for this option*
- MCGRAW-HILL - GLENCOE Advanced Mathematical Concepts: Pre-Calculus with Applications Problem Solving & Applications Masters (0000032018) - *Additional problem solving and applications practice*
- MCGRAW-HILL - GLENCOE Advanced Mathematical Concepts: Pre-Calculus with Applications Solutions Manual(0000032019) - *Worked out solutions for all problems*

MCDUGAL-LITTELL Option

This is a challenging curriculum that is great for students and parents that enjoy math.

- MCDUGAL LITTELL Pre-Calculus with Discrete Mathematics and Data Analysis SE 2003 Edition I-DEA TOP PICK (0000025873) - *Student textbook, required for this option*
- MCDUGAL LITTELL Pre-Calculus with Discrete Mathematics and Data Analysis TE 2003 Edition I-DEA TOP PICK (0000025875) - *Teacher textbook, required for this option*
- MCDUGAL LITTELL Pre-Calculus with Discrete Mathematics and Data Analysis Solutions Manual 2003 Edition I-DEA TOP PICK (0000025874) - *Contains worked out solutions for all problems*
- MCDUGAL LITTELL Pre-Calculus with Discrete Mathematics and Data Analysis Activities Book 2003 Edition I-DEA TOP PICK (0000032016) - *Contains activities to apply and enrich the course content, encourages problem-solving skills*
- MCDUGAL LITTELL Pre-Calculus with Discrete Mathematics and Data Analysis Student Resource Guide for Study and Review 2003 Edition I-DEA TOP PICK (0000032017) - *Lessons designed to help students study and review effectively*

[Glencoe Online Resources \(click here\)](#)

Recommended: Graphing Calculator, ALEKS subscription

Supplemental Materials or Software:

- For worked out solutions to the odd problems: HotMath (password: achieve)

Grading Scale	
90-100%	A
80-89%	B
70-79%	C
60-69%	D
0-59%	F

End of Course Assessment:

A comprehensive semester examination will be given during exam week each semester. Semester examinations will be given by a supervising instructor at a previously agreed upon location, most often a resource center. 70% or better is considered a passing grade.

Course Evaluation:

A. The End of Course Assessment will be worth 40% of the semester grade.

Please note that course credit will not be awarded for students that earn below 70% on the formal assessment.

B. Home Participation is worth 60% of the semester grade.

Home participation is to be determined by the contact teacher and home educator. The participation may include, but is not limited to, textbook activities, quizzes, unit tests, projects, oral reports, or research papers. Grades for home participation will be submitted to the contact teacher who will then forward a copy to the supervising instructor for semester grade tabulation.

C. Standards-Based Portfolio Conference

A Portfolio containing graded examples of student work from the selected curriculum will be required as per school policy, and should be shared with the assigned Contact Teacher once per semester.

Pacing Guide

The topics and standards for this course have been divided between the two semesters. In order to fulfill this pacing requirement, the recommended texts have been broken down by chapter. Covering the chapters in the order listed will insure that all topics on the final exam will be covered during the appropriate semester.

Pre-Calculus A	Holt	Glencoe	McDougal-Littell
• Review	Chapter 1, 2	Chapter 1, 2	Chapter 1, 3
• Functions & Graphs	Chapter 3	Chapter 3	Chapter 4
• Polynomial & Rational Functions	Chapter 4	Chapter 4	Chapter 2, 19-2
• Exponential & Logarithmic Functions	Chapter 5	Chapter 11	Chapter 5
• Conics	Chapter 11	Chapter 10	Chapter 6
• Sequences and Series	(Chapter 1)	Chapter 12	Chapter 13
Pre-Calculus B	Holt	Glencoe	McDougal-Littell
• Trigonometry & Trigonometric Graphs	Chapter 6, 7	Chapter 5, 6	Chapter 7
• Trigonometric Identities	Chapter 8, 9, 10	Chapter 7	Chapter 8, 9, 10
• Systems of Equations & Matrices	Chapter 12	(Chapter 2)	Chapter 14
• Polar Coordinates & Complex Numbers	Chapter 10, 11	Chapter 9	Chapter 11
• Statistics & Probability	Chapter 13, Advanced Topic B.1	Chapter 13, 14	Chapter 15, 16, 17

I-DEA Student Honor Code:

With any form of valid proof of dishonesty with regard to student work or testing, the instructor may elect from a range of actions. Academic dishonesty could lead to a zero grade for the assignment or even failure for the entire course following consultation between the instructor, Secondary Supervisor, and Director.

All students must adhere to the **Honor Code:**

“On my honor, I will maintain the highest possible standards of honesty, integrity and personal responsibility. This means I will not lie, cheat or steal, and as a member of this academic community, I am committed to creating an environment of respect and mutual trust.”

[Pre-Calculus Course Standards](#)

Pre-Calculus A Expanded Pacing Guide

	Skill Statements from the Standards	Holt	Glencoe	McDougal-Littell
Review	PC.1.3.2 Perform operations with real and complex numbers.	Chapter 1: Number Patterns Chapter 2: Equations and Inequalities	Chapter 1 - Linear Relations and Functions Chapter 2 - Systems of Linear Equations and Inequalities	Chapter 1 Linear and Quadratic Functions Chapter 3 Inequalities
Functions & Graphs	PC.3.1.2 Select and use various representations for relations and functions. PC.3.1.3 Perform transformations such as: arithmetic combinations, inverses, and compositions of functions. PC.3.4.1 Apply and compare the properties of classes of functions, including polynomial, rational, exponential, and logarithmic functions.	Chapter 3: Functions and Graphs	Chapter 3 - The Nature of Graphs	Chapter 4 Functions
Polynomial & Rational Functions	PC.3.1.4 Apply the Fundamental Theorem of Algebra to determine roots of polynomial functions. PC.3.2.5 Solve rational equations. PC.3.2.6 Solve polynomial equations. PC.3.4.1 Apply and compare the properties of classes of functions, including polynomial, rational, exponential, and logarithmic functions.	Chapter 4: Polynomial and Rational Functions	Chapter 4 - Polynomial and Rational Functions	Chapter 2 Polynomial Functions Chapter 19 Limits, Series, and Iterated Functions (Lesson 19-2)
Exponential & Logarithmic Functions	PC.1.3.1 Apply the properties of exponents and logarithms. PC.3.2.3 Solve exponential equations. PC.3.2.4 Solve logarithmic equations PC.3.4.1 Apply and compare the properties of classes of functions, including polynomial, rational, exponential, and logarithmic functions.	Chapter 5: Exponential and Logarithmic Functions	Chapter 11 - Exponential and Logarithmic Functions	Chapter 5 Exponents and Logarithms
Conics	PC.3.2.1 Write equations of circles, parabolas, and ellipses in standard form.	Chapter 11: Analytic Geometry	Chapter 10 - Conics	Chapter 6 Analytic Geometry
Sequences & Series	PC.5.2.1 Identify and apply arithmetic, geometric, and infinite notation. PC.5.2.2 Identify nth terms of arithmetic and geometric sequences. PC.5.2.3 Find the nth term in arithmetic and geometric series. PC.5.2.4 Find sums of arithmetic, geometric, and infinite series.	(Chapter 1: Number Patterns)	Chapter 12 - Sequences and Series	Chapter 13 Sequences and Series

Pre-Calculus B Expanded Pacing Guide

	Skill Statements from the Standards	Holt	Glencoe	McDougall-Littell
Trigonometry & Trigonometric Graphs	PC.2.2.1 Compute co-terminal angles and reference angles given an angle in standard position. PC.2.2.2 Convert between degree and radian measures. PC.3.3.1 Identify the domain and range of sine and cosine functions. PC.4.1.1 Find the period and amplitude of sine and cosine functions. PC.4.3.1 Graph trigonometric functions of the form $y = D + A\sin(Bx)$ and $y = D + A\cos(Bx)$. PC.4.4.1 Apply unit circle trigonometry to determine exact values using sine, cosine, and tangent ratios.	Chapter 6: Trigonometry Chapter 7: Trigonometric Graphs	Chapter 5 - The Trigonometric Functions Chapter 6 - Graphs of Trigonometric Functions	Chapter 7 Trigonometric Functions
Trigonometric Identities	PC.3.1.1 Verify and simplify trigonometric identities. PC.3.2.2 Solve trigonometric equations.	Chapter 8: Solving Trigonometric Equations Chapter 9: Trigonometric Identities and Proofs Chapter 10: Trigonometric Applications	Chapter 7 - Trigonometric Identities and Equations	Chapter 8 Trigonometric Equations and Applications Chapter 9 Triangle Trigonometry Chapter 10 Trigonometric Addition Formulas
Systems of Equations & Matrices	PC.1.3.3 Perform operations on matrices. PC.3.2.7 Solve systems of linear equations. PC.3.2.8 Solve systems of linear inequalities. PC.3.2.9 Apply matrices to solve systems of equations.	Chapter 12: Systems and Matrices	(Chapter 2 - Systems of Linear Equations and Inequalities)	Chapter 14 Matrices
Polar Coordinates & Complex Numbers	PC.4.2.1 Sketch and convert coordinates of the rectangular and polar systems. PC.4.2.2 Draw an angle in standard position given degree or radian measure. PC.4.2.3 Locate the quadrant in which an angle lies given its radian or degree measure.	Chapter 10: Trigonometric Applications (Chapter 11: Analytic Geometry)	Chapter 9 - Polar Coordinates and Complex Numbers	Chapter 11 Polar Coordinates and Complex Numbers
Statistics & Probability	PC.5.1.1 Choose an experimental design or survey sampling method appropriate to collect data. PC.5.1.2 Choose an appropriate table or graph to display data. PC 5.2.5 Use Pascal's Triangle to calculate binomial coefficients. PC 5.2.6 Use the Binomial Theorem to calculate binomial coefficients.	Chapter 13: Statistics and Probability B.1 Advanced Topics	Chapter 13 - Combinatorics and Probability Chapter 14 - Statistics and Data Analysis	Chapter 15 Combinatorics Chapter 16 Probability Chapter 17 Statistics
Additional Chapters		Chapter 14: Limits and Continuity	Chapter 8 - Vectors and Parametric Equations Chapter 15 - Introduction to Calculus	Chapter 12 Vectors and Determinants Chapter 18 Curve Fitting and Models Chapter 20 An Introduction to Calculus