

The syllabus for Math 8B

The syllabus is a melding of the syllabus for Mathematics 9A and preliminary material from trigonometry. The preliminary material is drawn from the trigonometry sections of the current Math 5 textbook and is brought in as needed.

The current Math 9 textbook is Thomas' Calculus 11th Edition.  
The current Math 5 text book is Dugopoloski Precalculus 3rd Edition.  
The sections from Dugopoloski are in italics.

#### Preliminary

##### Trigonometry I

- 5.4 The Other Trigonometric Functions and Their Graphs.
- 5.5 The Inverse Trigonometric Functions and Their Graphs.
- 5.6 Right Triangle Trigonometry. 6.1 Basic Identities.
- 6.2 Verifying Identities.
- 6.3 Sum and Difference Identities.

##### Limits and Derivatives

- 2.1 Rates of Change and Limits
- 2.2 Calculating Limits Using the Limit Laws
- 2.3 Precise Definition of a Limit
- 2.4 One-sided Limits and Limits at Infinity
- 2.5 Infinite Limits and Vertical Asymptotes
- 2.6 Continuity
- 2.7 Tangents and Derivatives

##### Differentiation

- 3.1 The Derivative of a Function
- 3.2 Differentiation Rules
- 3.3 The Derivative as a Rate of Change

##### Trigonometry II

- 6.4 Double-Angle and Half-Angle Identities.
- 6.5 Product and Sum Identities.
- 6.6 Conditional Trigonometric Equations.
- 3.4 Derivatives of Trigonometric Functions
- 3.5 The Chain Rule and Parametric Equations
- 3.6 Implicit Differentiation
- 3.7 Related Rates
- 3.8 Linearization and Differentials

##### Applications of Derivatives

- 4.1 Extreme Values of Functions
- 4.2 The Mean Value Theorem and Differential Equations
- 4.3 Monotonic Functions and the First Derivative Test
- 4.4 Concavity and Curve Sketching

##### Trigonometry III

- 7.1 Law of Sines
- 7.2 Law of Cosines
- 7.3 Vectors
- 4.5 Applied Optimization Problems
- 4.6 Indeterminate Forms and L'Hopitals's Rule
- 4.8 Anti-derivatives
- 5.5 Indefinite Integrals and the Substitution rule

Additional lectures