

Shareworld Learning Center
2020
Differential Calculus

The main objective of this summer class is to enable students to grasp the idea of differential calculus and receive a strong foundation that will give them the tools to succeed in AP® Calculus courses. Students do best when they have an understanding of the conceptual underpinnings of calculus. Rather than making students memorize, I encourage student to ask why. The course covers functions, limits, derivatives, rules and application of differentiation.

Text Book: James Stewart, Calculus - Early Transcendentals 5th Edition; ISBN 0534393217

6/9/2020	Appx. A	Numbers, Inequalities, and Absolute Values
Tuesday	Appx. B	Coordinate Geometry and Lines
	Appx. C	Graphs of Second-Degree Equations
	Appx. D	Trigonometry
6/11/2020		Principle of Mathematical Induction (Page 81)
Thursday	Appx. E	Sigma Notation
	Appx. G	Complex Numbers
		A Preview of Calculus
6/16/2020	1.1	Four Ways to Represent a Function
Tuesday	1.2	Mathematical Models: A Catalog of Essential Functions
	1.3	New Functions from Old Functions
	1.4	Graphing Calculators and Computers
6/18/2020	1.5	Exponential Functions
Thursday	1.6	Inverse Functions and Logarithms
		Principles of Problem Solving (Page 80)
6/23/2020	2.1	The Tangent and Velocity Problems
Tuesday	2.2	The Limit of a Function
	2.3	Calculating Limits Using the Limit Laws
6/25/2020	2.4	The Precise Definition of a Limit
Thursday	2.5	Continuity
	2.6	Limits at Infinity; Horizontal Asymptotes

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7/23/2020	4.3	How Derivatives Affect the Shape of a Graph
Thursday	4.4	Indeterminate Forms and L'Hospital's Rule
7/28/2020	4.5	Summary of Curve Sketching
Tuesday	4.7	Optimization Problems
7/30/2020	4.9	Newton's Method
Thursday	4.10	Antiderivatives Problems Plus (Page 365)
8/4/2020	5.1	Areas and Distances
Tuesday	5.2	The Definite Integral
8/6/2020	5.3	The Fundamental Theorem of Calculus
Thursday	5.4	Indefinite Integrals and the Net Change Theorem