Boost

CALCULUS I
A SUBJECT COLLECTION

OUR MISSION

At Boost by Proprep, we envision a world where students of diverse backgrounds have the strong mathematical foundations they need *today*, to thrive in successful STEM careers *tomorrow*.

WHAT WE DO

Boost provides quality STEM content and flexible features to improve learning outcomes and save instructors time, while keeping them at the heart of the learning experience. Boost can be used effectively as an independent study resource for students, as well as within the classroom.

COLLECTION STATS

1177
Videos

383
Assessment Questions

100
Hours

120
Learning Objectives

TOPIC	SUBTOPIC
Hyperbolic Functions	Hyperbolic Functions
Logic, Set Theory, Number System	Logic and Set Theory
	Operations on Sets
	Irrational Numbers
	Bounded and Unbounded Sets in R
	Further Properties of Bounded Sets
	Mathematical Induction
	Summation and Sigma notation
	Advanced Theory Exercises
	Famous Inequalities
Function Characteristics	The Domain of Basic Functions
	The Domain of Logarithmic and Exponential Functions
	The Domain of Trigonometric Functions
	The Domain of Absolute Value Functions
	The Domain of a Piecewise Function
	Translation (Shifting) and Reflection of Functions
	The Composition of Functions
	Even and Odd Functions
	One-to-One Functions
	The Inverse of a Function
	Piecewise-Defined Functions
	The Absolute Value Function
The Limit of a Function	Technique 1 - Substitution

OUR CURATED COLLECTIONS

Subjects

Precalculus
Calculus I
Calculus II
Statistics
Probability
Chemistry
Biology

Disciplines

Math for Engineering
Math for Business
Math for Medical Studies

TOPIC	SUBTOPIC
The Limit of a Function	Technique 2 - Factoring
	Technique 3 - Multiplying by the Conjugate
	Technique 4 - Function Tends to Infinity
	Technique 5 - X Tends to Infinity
	Technique 6 - Euler's Limit
	Technique 7 - Trigonometric Limits
	Technique 8 - The Sandwich Squeeze Theorem
	Technique 9 - Piecewise Functions
	Limit from Definition
Continuity of a Function	Continuity of a Function
	Points of Discontinuity
	The Intermediate Value Theorem
Derivative of a Function	Basic Derivatives of Functions
	Derivative of Exponents and Logarithmic Functions
	Trigonometric Derivatives
	Logarithmic Differentiation
Tangents, Normal lines and Linear Approximation	Tangent and Normal Lines - Basic Exercises
	Tangent and Normal Lines – Exercises with a Constant
	Tangent and Normal Lines of Implicit Functions
	Tangent and Normal lines - Parametric Functions
	The Angle Between Two Curves
	Vertical Tangents and Cusps
	Linear Approximation

TOPIC	SUBTOPIC
Differentiability	Differentiability of Piecewise Functions
Rolle's Theorem and the Mean Value Theorem	The Mean Value Theorem
	Rolle`s Theorem: Advanced Exercises
	Darboux's Mean Value Theorem
L'Hôpital's Rule	Zero Times Infinity
	Exponents: Infinity^Zero, Zero^Zero, One^Infinity
	Infinity Minus Infinity
	L'Hôpital's Rule: Advanced Exercises
Related Rates Problems	Related Rates Problems
Extrema Word Problems	Geometrical Problems
	Functions and Graphs Problems
	Business Applications Problems
	Pricing Problems
The Shape of a Function - Curve Sketching	Extrema, Increase, Decrease
	Inflection, Convex, Concave
	Vertical Asymptotes
	Horizontal Asymptotes
	Oblique Asymptotes
	Curve Plotting
	Global Extrema

TOPIC	SUBTOPIC
Graphs of a Function and its Derivative	Graphs of a Function and its Derivative
The Indefinite Integral	The Indefinite Integral
Integrals - Derivative Contained	Integrals - Derivative Contained
Integration by Parts	Integration by Parts
Integration by Substitution	Integration by Substitution
Trigonometric Integrals and Trigonometric Substitution	Trigonometric Integrals using Identities
	Basic Trigonometric Integrals
	Integration using Trigonometric Substitution
Integration of Rational Functions	Integration of Rational Functions
Definite Integrals	Definite Integrals
	Riemann Sum and Integrability
	Fundamental Theorm of Calculus
	Riemann Integration and Integrability
	Further Exercises - Criterion for Integrability
	Advanced Exercises - Riemann Sum and FTC

Content

- Bite-sized video tutorials help student learn at their own pace
- Step-by-step practice videos improve learning outcomes and practical understanding
- Curated courses may be assigned by instructors or taken by students independently
- Assessments measure student progress
- Customizable courses may be edited to suit the needs of specific learners

Flexibility

- Database of tutorial and practice videos provide students a boost in foundational STEM topics
- Flexible teaching resources for blended learning models
- Collection of curated online courses for use in blended learning or as prerequisites
- Editing tool to create and customize courses that meet your learners' needs

Technology

- Assign curated course playlists and assessments to your learners
- Track progress of your learners with live metrics and data visualization
- Create original courses from our library of over 5,000 videos and 1,700 questions
- Upload your own content to customize any course
- Search and save videos from the content library for future viewing

OUR COURSE FLOW

Theory Video

Students begin their journey by watching an initial Theory Video

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Assessment Question 1

Students test their understanding and receive immediate feedback

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Exercise Video 1

Students watch step-by-step, how to solve the assessment question so that incorrect answers receive both correction and an explanation

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Assessment Question 2

Questions increase difficulty to push students further in their learning

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Exercise Video 2

Step-by-step guided solutions reinforce concepts for correct answers, improving true understanding and confidence

Learn more at boost.proprep.com