

Calculus BC/AP - Information

First Semester Topics

I. Limits

- Intuitive Approach; Graphical, Tabular, and Algebraic Analysis of functions
- One-Sided Limits and limits at infinity
- Continuity; removable and non-removable discontinuities

II. Derivatives and Their Applications

- Limit Definition of a Derivative; Differentiability
- Basic Differentiation Rules (power rule, trigonometric derivatives)
- Writing equations of Tangent/Normal Lines
- Tangent Line Approximations; Vertical Motion (including average and instantaneous rate of change)
- Product Rule; Quotient Rule
- Higher Order Derivatives; Linear graphs of $s(t)$ and $v(t)$
- Chain Rule
- Derivatives of Exponential and Logarithmic Functions
- Implicit Differentiation
- Related Rates
- Sketches of $f(x)$, $f'(x)$, $f''(x)$; Particle Motion
- Critical Numbers; Increasing/Decreasing Intervals; First Derivative Test
- Inflection Points; Concavity; 2nd Derivative Test
- Mean Value Theorem
- Derivatives of Inverse Trig Functions
- Optimization
- L'Hopital's Rule
- Derivatives of parametric, vector, and polar functions with applications
- Differential Equations using Euler's Rule
- Logistic Growth Model

III. Integrals

- Approximating area under a curve using Riemann Sums and numerical integration
- Antiderivatives
- Fundamental Theorem of Calculus; Definite Integration
- Properties of Definite Integrals
- Trigonometric Integration
- Integration using Substitution
- Integration of Natural Log and Natural Exponential
- Exponential Growth and Decay
- Differential Equations
- Slope Fields
- Volume of Rotational Solids
- Volume of Solids with Known Cross Sections
- Rectangular arc length
- Surface area of rotational solids
- Techniques of Integration
- Trigonometric Integration
- Integration by Parts
- Integration using Partial Fractions
- Trigonometric Substitution Integrals
- Arc Length of Parametric Curves
- Area within/between Polar Curves
- Improper Integrals

Second Semester Topics

IV: Sequences and Series

- Sequences; Geometric Series
- Nth Term test for Divergence; Telescoping Series Test
- Integral test; P-Series
- Direct Comparison Test; Limit Comparison Test
- Alternating Series Test; Alternating Series Remainder
- Ratio Test; Root Test

- Taylor Polynomials and Approximations
- Power Series
- Taylor Series
- Lagrange Error Bound

V. Additional Function Fundamentals

- Parametric Equations
- Vectors
- Polar Equations

Calculus BC/AP Tutoring Hours:

Teacher	Room Number	Before School	After School
Mr. Said	3203	Everyday 7:30-8:40	Tue, Thurs. 4:05-4:35

Teacher WebPages and contact information

Features: agendas posted classroom news, links to copies of homework, and more!

Teacher	Contact Information	Webpage
Mr. Said	Ksaid@neisd.net	http://tw.neisd.net/webpages/ksaid/

Helpful Websites

AgileMind: <http://neisd.agilemind.com>

Students sign in using their assigned user ID (student ID # without the leading "0") and password (also the student ID # without the leading "0")

Grades

--Daily Grades: 15% --Quizzes: 25% --Tests: 60%

Please check Parent Portal for updates on grades. Parent portal is updated. If you have not registered for Parent Portal please go to : <https://portal.neisd.net/NEISDPortal/DesktopDefault.aspx>.