Mt. Zion CUSD #3
Curriculum Map
Mathematics

Course: Calculus
Grade Level: 11-12

QUARTER	CONTENT	SKILLS	MATERIALS	ASSESSMENTS
1	• Limits, Derivatives, Integrals, and Indefinite Integrals	• The concept of instantaneous rate and limits • Rate of change by equation, graph, or table • Definition of integral by counting squares • Definite integrals by trapezoids, from equations and data	• Textbook • Graphing Calculator	• Daily Assignments • Quizzes • Chapter Test
	• Properties of Limits	• Numerical approach to the definition of limit • Graphical and algebraic approaches to the definition of limit • The limit theorems • Continuity examined both graphically, algebraically, and in terms of limits • Comparing limits of a variety of functions (polynomial, logarithmic, etc.) • Limit behavior with respect to asymptotes • Limits involving infinity • The Intermediate and Extreme Value Theorem	• Textbook • Graphing Calculator	• Daily Assignments • Quizzes • Chapter Test

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QUARTER	CONTENT	SKILLS	MATERIALS	ASSESSMENTS
	• Derivatives, Antiderivatives, and Indefinite Integrals	• Graphical Interpretation of Derivative • Slope approximations from tabular data • Difference quotients and definition of derivative • Derivative functions, numerically, analytically, and graphically • Derivative of the power function • Displacement, velocity, and acceleration • Graphical introduction to sine, cosine, and composite functions • Derivative of composite functions – Chain Rule • Proof and application of sine and cosine derivatives • Antiderivatives and indefinite integrals • Exponential and logarithmic functions	• Textbook • Graphing Calculator	• Daily Assignments • Quizzes • Chapter Test

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QUARTER	CONTENT	SKILLS	MATERIALS	ASSESSMENTS
2	• Product and Quotient Functions	• Combinations of two functions • Derivative of a product of two functions • Derivative of a quotient of two functions • Derivative of the other trigonometric functions • Derivatives of inverse trigonometric functions • Differentiability and continuity • Graphs and derivatives of implicit relations • Related rates	• Textbook • Graphing Calculator	• Daily Assignments • Quizzes • Chapter Test
	• Definite and Indefinite Integrals	• A definite integral problem • Linear approximations and differentials • Formal definition of antiderivative and indefinite integral • Riemann Sum and the definition of the definite integral • The Mean Value Theorem and Rolle's Theorem	• Textbook • Graphing Calculator	• Daily Assignments • Quizzes • Chapter Test

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QUARTER	CONTENT	SKILLS	MATERIALS	ASSESSMENTS
	• Definite and Indefinite Integrals (continued)	• Special Riemann Sums • The Fundamental Theorem of Calculus • Definite integral properties and practice • Definite integrals applied to area • Volume of a solid using disk, washers, and plane slicing		• Semester Exam

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QUARTER	CONTENT	SKILLS	MATERIALS	ASSESSMENTS
3	• The Calculus of Exponential and Logarithmic Functions	• Integral of the reciprocal function: A population growth problem • Antiderivative of the reciprocal function and another form of the fundamental theorem • Uniqueness theorem and properties of log functions • Ln(x) really is a logarithmic function • Derivatives of exponential functions—logarithmic differentiation • The number e, and the derivative of base b logarithm functions • The natural exponential function: The inverse of ln • Limits of indeterminate forms: l'Hospital's rule • Derivative and integral practice for transcendental functions	• Textbook • Graphing Calculator	• Daily Assignments • Quizzes • Chapter Test • Chapters 1-6 Exam Review

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QUARTER	CONTENT	SKILLS	MATERIALS	ASSESSMENTS
	• The Calculus of Growth and Decay	• Direct proportion property of exponential functions • Exponential growth and decay • Other differential equations for real-world applications • Graphical solution of differential equations by using slope fields	• Textbook • Graphing Calculator	• Daily Assignments • Quizzes • Chapter Test
4	• The Calculus of Plane and Solid Figures	• Cubic functions and their derivatives • Critical points and points of inflection • Maxima and minima in plane and solid figures • Volume of a solid of revolution by cylindrical shells	• Textbook • Graphing Calculator	• Daily Assignments • Quizzes • Chapter Test

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QUARTER	CONTENT	SKILLS	MATERIALS	ASSESSMENTS
	• The Calculus of Motion	• Introduction to distance and displacement for motion along a line • Distance, displacement, and acceleration for linear motion • Average value problems in motion and elsewhere	• Textbook • Graphing Calculator	• Daily Assignments • Quizzes • Chapter Test
	• AP Exam	• AP Exam Review	• Graphing Calculator	• AP Test • Semester Exam