Mt. Zion High School Curriculum Map

Name:_____Matthew Moore_____Department:_____Mathematics Subject:_____Calculus II_____

Quarter	Essential Skills	Strategies and Activities	CC Standards	Assessments
Q1	1. Students will understand, compute, manipulate and apply limits graphically, numerically, symbolically, and verbally.	1.a Students will be able to relate function behavior in terms of limits graphically and symbolically.		Chapter Quiz/test, Semester Exam
Q1		1b. Students will be able to compute basic limits numerically from graphical and symbolic data.		Chapter Quiz/test, Semester Exam
Q1		1c. Students will apply limits to their understanding of continuity developing the three prong test for continuity.		Chapter Quiz/test, Semester Exam
Q1		1d. Students will apply limits to their understanding of continuity contrasting with discontinuous behavior.		Chapter Quiz/test, Semester Exam
Q1		1e. Students will know and be able to explain the formal definition of limit.		Chapter Quiz/test, Semester Exam
Q1	2. Students will understand, compute, manipulate, and apply differentiation graphically, numerically, symbolically, and verbally.	2a. Beginning with the algebraic definition of slope, students will develop the concept of the instantaneous rates of change using the line first secant, then tangent to the graph.		Chapter Quiz/test, Semester Exam

Q1		2b. Students will understand and be able to use the various notations for the derivative and be able to use technology to approximate the derivative numerically.		Chapter Quiz/test, Semester Exam
Q1		2c. Students will be able to identify and apply the power, product, quotient, and chain rule to functions to develop derivatives.		Chapter Quiz/test, Semester Exam
Q1		2d. Students will be able to use trigonometric derivative rules to differentiate functions involving trigonometric components.		Chapter Quiz/test, Semester Exam
Q1		2e. Students will be able to differentiate basic functions implicitly.		Chapter Quiz/test, Semester Exam
Q1		2f. Students will understand and be able to apply both the mean value theorem and Rolle's theorem.		Chapter Quiz/test, Semester Exam
Q1	3. Students will understand, compute, manipulate, and apply differentiation graphically, numerically, symbolically, and verbally with repect to graphic behavior.	3a. Students will be able to apply basic linear approximations to curves with some utilizing Newtons method.		Chapter Quiz/test, Semester Exam

Q1		3b. Students will be able to use the first and second derivative tests to identify and describe extrema, concavity and areas of increasing and decreasing value.		Chapter Quiz/test, Semester Exam
Q1		3c. Students will utilitize the derivative for the purpose of optimizations, relation of rates and rates of change in data.		Chapter Quiz/test, Semester Exam
Q2	4. Students will understand, compute, manipulate and apply Integration graphically, numerically, symbolically, and verbally.	4a. Students will understand and be able to determine the antiderivative of integrable functions.		Chapter Quiz/test, Semester Exam
Q2		4b. Students will examine the antiderivative and integrals as a summations of discrete components using sumation notation.		Chapter Quiz/test, Semester Exam
Q2		4c. Students will apply and create definite integrals to evaluate and estimate the area under curves, including the mean value of the area.		Chapter Quiz/test, Semester Exam
Q2		4d. Students will understand and be able to use the Fundemental Theorem of Calculus.		Chapter Quiz/test, Semester Exam
Q2		4e. Students will be able to manipulate and evaluate integral functions by means of differential substitution.		Chapter Quiz/test, Semester Exam

Q2		4f. Students will approximate definite integrals to evaluate and estimate the area under curves using numerical methods including Reimman sums and Simpson's rule.		Chapter Quiz/test, Semester Exam
Q2	5. Students will understand, compute, manipulate, and apply Integrals graphically, numerically, symbolically, and verbally with repect to graphic behavior, specifically area under the curve.	5a. Students will compute the areas between using the difference of integrals.		Chapter Quiz/test, Semester Exam
Q2		5b. Students will evaluate volumes of solids using plane and cylindrical shells.		Chapter Quiz/test, Semester Exam
Q2		5c. Students will apply the integral to finding the lengths of non-linear curves and the surface areas of non-geometric solids.		Chapter Quiz/test, Semester Exam
Q2		5d. Students will apply the definite integral to the motion of a projectile and to applications within physics and engineering.		Chapter Quiz/test, Semester Exam
Q3	6. Students will understand, compute, manipulate, and apply Integrals graphically, numerically, symbolically, and verbally exponentials, logarithms, and other transcendental functions.	6a. Students will the apply the definite integral to problems involving exponential and logarithmic functions.		Chapter Quiz/test, Semester Exam

		6b. Students will the apply the definite integral to problems involving inverse functions including inverse trigonometric functions.		Chapter Quiz/test, Semester Exam
		6c. Students will evaluate integrals involving hyperbolic functions.		Chapter Quiz/test, Semester Exam
Q3	7. Students will learn, understand and utilize expanded integration methods.	7a. Students will use substitution and completing the square to evaluate more complex integrals.		Chapter Quiz/test, Semester Exam
		7b. Students will be introduced to and use integration by parts, including rapid integration by parts and reassociation.		Chapter Quiz/test, Semester Exam
		7c. Students will use trigonometric substitutions for evaluating areas under the curve.		Chapter Quiz/test, Semester Exam
		7d. Students will integrate using partial fractions and decomposition of fractions.		Chapter Quiz/test, Semester Exam
Q4		7e. Students will explore indeterminate forms and utilize L'Hopital's rule to solve related integrals.		Chapter Quiz/test, Semester Exam
		7f. Students will utilize improper integrals to evaluate and approximate discontinuous and infinite integrals.		Chapter Quiz/test, Semester Exam

		7g. Students will understand and communicate probability distributions to the Riemann methods for integrals.		Chapter Quiz/test, Semester Exam
Q4	8. Students will understand, compute, manipulate, and apply differentials graphically, numerically, symbolically, and verbally.	8a. Students will understand, compute, manipulate, and apply explicit differential equations graphically, numerically, symbolically, and verbally.		Chapter Quiz/test, Semester Exam
		8b. Students will understand, compute, manipulate, and apply slope fields as representations of differential equations.		Chapter Quiz/test, Semester Exam
Q4	9. Students will understand, compute, manipulate, and apply infinite series graphically, numerically, symbolically, and verbally.	9a. Students will differentiate between sequence and series and determine convergence and divergence.		
		9b. Students will explore the series and its behavior when extrapolated to infinity.		
		9c. Students will apply the integral, comparison, and ratio test to infinite series.		
		9d. Students will analyze and evaluate alternating and taylor series.		