

Curriculum Map
Honors Calculus (353)
Saugus High School
Saugus Public Schools
2009-2010

Week 1		Week 2	
Performance Standards		Performance Standards	
<p><i>The students will:</i> 12.P.4 Demonstrate an understanding of the trigonometric, exponential, and logarithmic functions.</p>		<p><i>The students will:</i> 12.P.4 Demonstrate an understanding of the trigonometric, exponential, and logarithmic functions. 12.P.5 Perform operations on functions, including composition. Find inverses of functions.</p>	
Unit/Topic/Lesson UNIT ONE Functions and Graphs		Unit/Topic/Lesson UNIT ONE Functions and Graphs	
<ol style="list-style-type: none"> 1. Definition of Function 2. Basic Functions and Transformations 3. Linear Function and Mathematical Modeling 4. Exponential Functions 		<ol style="list-style-type: none"> 1. Compound Interest and the Number e 2. Inverse Functions 3. Logarithms 	
Mission and Expectations		Mission and Expectations	
<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 		<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 	
Objectives	Essential Question	Objectives	Essential Question
<ol style="list-style-type: none"> 1. To determine whether a relation is a function. 2. To transform and evaluate basic functions. 3. To use linear function for mathematical modeling. 	<p>How do you use a function to model a real world situation?</p>	<ol style="list-style-type: none"> 1. To evaluate and graph exponential functions. 2. To compute compound interest. 	<p>How is e linked to logarithms and inverse functions?</p>
Teacher Resources	Media Resources	Teacher Resources	Media Resources
<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Chapter One lessons 2. Chapter One Practice Problems 3. Chapter One Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad. 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Chapter One lessons 2. Chapter One Practice Problems 3. Chapter One Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad.
Evaluation/Activities	Completion date:	Evaluation/Activities	Completion date:
<p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completed by:</p> <p>Comments:</p>	<p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completed by:</p> <p>Comments:</p>

Week 3		Week 4	
<p align="center">Performance Standards</p> <p><i>The students will:</i> 12.P.4 Demonstrate an understanding of the trigonometric, exponential, and logarithmic functions 12.P.5 Perform operations on functions, including composition. Find inverses of functions. 12.P.6 Given algebraic, numeric and/or graphical representations, recognize functions as polynomial, rational, logarithmic, exponential, or trigonometric.</p>		<p align="center">Performance Standards</p> <p><i>The students will:</i> 4.0 Students demonstrate an understanding of the formal definition of the derivative of a function at a point and the notion of differentiability:</p>	
<p align="center">Unit/Topic/Lesson UNIT ONE Functions and Graphs</p> <ol style="list-style-type: none"> Combining Functions Polynomial Functions Rational Functions Composition of Functions Trigonometric Functions 		<p align="center">Unit/Topic/Lesson UNIT TWO Derivative Functions</p> <ol style="list-style-type: none"> Average Velocity Instantaneous Velocity The Derivative of a Function at a Point 	
<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>		<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>	
<p align="center">Objectives</p> <ol style="list-style-type: none"> To combine function using sums, differences, products, and quotients. To work the idea of even and odd functions. To work with both polynomial and rational function and their simplification. To define composition functions. To connect function inverses. To study and explore the nature of trigonometric functions. 	<p align="center">Essential Question</p> <p>How is the nature of each function similar as they related to transformations?</p>	<p align="center">Objectives</p> <ol style="list-style-type: none"> To calculate average velocity. To understand the connection between average velocity and slope of a secant line. To determine instantaneous velocity. To work with the tangent line to a curve. To find the instantaneous rate of change of a function. To find the derivative of a function at a point. 	<p align="center">Essential Question</p> <p>What is meant by the derivative of a function at a point?</p>
<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Chapter One lessons Chapter One Practice Problems Chapter One Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad. 	<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Chapter Two lessons Chapter Two Practice Problems Chapter Two Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad.
<p align="center">Evaluation/Activities</p> <p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum. Test: On the concepts of Functions and Graphs.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>	<p align="center">Evaluation/Activities</p> <p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>

Week 5		Week 6	
Performance Standards		Performance Standards	
<p><i>The students will:</i></p> <p>4.0 Students demonstrate an understanding of the formal definition of the derivative of a function at a point and the notion of differentiability:</p> <p>4.1 Students demonstrate an understanding of the derivative of a function as the slope of the tangent line to the graph of the function.</p> <p>4.2 Students demonstrate an understanding of the interpretation of the derivative as an instantaneous rate of change. Students can use derivatives to solve a variety of problems from physics, chemistry, economics, and so forth that involve the rate of change of a function.</p>		<p><i>The students will:</i></p> <p>1.1 Students use theorems evaluating the limits of sums, products, quotients, and composition of functions.</p> <p>1.2 Students use graphical calculators to verify and estimate limits.</p> <p>1.3 Students use special limits, such as the limits of $(\sin(x))/x$ and $(1-\cos(x))/x$ as x tends to 0.</p> <p>2.0 Students demonstrate knowledge of both the formal definition and the graphical interpretation of continuity of a function.</p> <p>3.0 Students demonstrate an understanding and the application of the intermediate value theorem and the extreme value theorem.</p> <p>4.3 Students understand the relation between differentiability and continuity.</p> <p>7.0 Students compute derivatives of higher orders.</p>	
Unit/Topic/Lesson UNIT TWO Derivative Functions		Unit/Topic/Lesson UNIT TWO Derivative Functions	
<ol style="list-style-type: none"> The Derivative Function Numeric Calculations of Derivative Critical Numbers (Relative Maximums and Minimum Points) 		<ol style="list-style-type: none"> Inflection Points and the Second Derivatives The Limit of a Function Continuity 	
Mission and Expectations		Mission and Expectations	
<ol style="list-style-type: none"> Critical Thinking Skills Problem Solving Skills Test Taking Skills 		<ol style="list-style-type: none"> Critical Thinking Skills Problem Solving Skills Test Taking Skills 	
Objectives	Essential Question	Objectives	Essential Question
<ol style="list-style-type: none"> To find the derivative of a function defined graphically, numerically, and symbolically. To calculate the derivative numerically using technology. To determine where a function is increasing or decreasing. To find the critical points of a function. To determine local maximums and minimums of a function. 	<p>How do you use the derivative to find the critical points?</p>	<ol style="list-style-type: none"> To find the second derivative of a function. To use the second derivative to find inflection points and determine concavity. To use the rules to determine the limits of functions. To determine the continuity of functions at point and on an interval. 	<p>How do you determine the limit of a function and how does that relate to the continuity of that function?</p>
Teacher Resources	Media Resources	Teacher Resources	Media Resources
<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Chapter Two lessons Chapter Two Practice Problems Chapter Two Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad. 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Chapter Two lessons Chapter Two Practice Problems Chapter Two Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad.
Evaluation/Activities	Completion date:	Evaluation/Activities	Completion date:
<p>Homework: To be given daily on each introduced topic</p> <p>Review: All weekly concepts.</p> <p>Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completed by:</p> <p>Comments:</p>	<p>Homework: To be given daily on each introduced topic</p> <p>Review: All weekly concepts.</p> <p>Quiz: Assessments given as warranted by the curriculum.</p> <p>Test: On the concepts of Derivative Functions.</p>	<p>Completed by:</p> <p>Comments:</p>

Week 7		Week 8	
Performance Standards		Performance Standards	
<p><i>The students will:</i> 1.0 Students demonstrate knowledge of both the formal definition and the graphical interpretation of limit of values of functions. This knowledge includes one-sided limits, infinite limits, and limits at infinity. Students know the definition of convergence and divergence of a function as the domain variable approaches either a number or infinity:</p>		<p><i>The students will:</i> 13.0 Students know the definition of the definite integral by using Riemann sums. They use this definition to approximate integrals.</p>	
Unit/Topic/Lesson UNIT THREE The Definite Integral		Unit/Topic/Lesson UNIT THREE The Definite Integral	
<ol style="list-style-type: none"> 1. Calculating the Distance Traveled 2. Visualizing the Distance Traveled 3. Left-Hand and Right-Hand Sums 		<ol style="list-style-type: none"> 1. Calculating Areas 2. Riemann Sums 3. Using the Calculator to Calculate Riemann Sums 	
Mission and Expectations		Mission and Expectations	
<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 		<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 	
Objectives	Essential Question	Objectives	Essential Question
<ol style="list-style-type: none"> 1. To approximate the distance traveled. 2. To estimate lower and upper sums. 3. To visualize the distance traveled using rectangles on the velocity graph. 4. To calculate left-hand and right-hand sums. 	<p>How do you use the derivative to calculate the total distance travelled?</p>	<ol style="list-style-type: none"> 1. To approximate area using inscribed and circumscribed rectangles. 2. To calculate Riemann Sums. 	<p>How is calculating the area tied in to the concept of definite integral?</p>
Teacher Resources	Media Resources	Teacher Resources	Media Resources
<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Chapter Three lessons 2. Chapter Three Practice Problems 3. Chapter Three Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad. 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Chapter Three lessons 2. Chapter Three Practice Problems 3. Chapter Three Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad.
Evaluation/Activities		Evaluation/Activities	
<p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date: Completed by: Comments:</p>	<p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date: Completed by: Comments:</p>

Week 9		Week 10	
<p align="center">Performance Standards</p> <p><i>The students will:</i> 14.0 Students apply the definition of the integral to model problems in physics, economics, and so forth, obtaining results in terms of integrals.</p>		<p align="center">Performance Standards</p> <p><i>The students will:</i> 15.0 Students demonstrate knowledge and proof of the fundamental theorem of calculus and use it to interpret integrals as antiderivatives.</p>	
<p align="center">Unit/Topic/Lesson UNIT THREE The Definite Integral</p> <ol style="list-style-type: none"> Definite Integrals Definite Integrals as an Area Approximating a Definite Integral Evaluating Definite Integrals Numerically with a Graphing Calculator 		<p align="center">Unit/Topic/Lesson UNIT THREE The Definite Integral</p> <ol style="list-style-type: none"> The Fundamental Theorem of Calculus Using the Fundamental Theorem to Evaluate Definite Integrals 	
<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>		<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>	
<p align="center">Objectives</p> <ol style="list-style-type: none"> To interpret the definite integral. To make the connection between area and the definite integral. To approximate the definite integral. To evaluate definite integrals numerically using a graphing calculator. 	<p align="center">Essential Question</p> <p>How the definite integral of a function relate to area?</p>	<p align="center">Objectives</p> <ol style="list-style-type: none"> To use the Fundamental Theorem of Calculus to find the change in a function. To use the Fundamental Theorem of Calculus to evaluate definite integrals. 	<p align="center">Essential Question</p> <p>How does the Fundamental Theorem of Calculus help you to find the definite integral?</p>
<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Chapter Three lessons Chapter Three Practice Problems Chapter Three Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad. 	<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Chapter Three lessons Chapter Three Practice Problems Chapter Three Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad.
<p align="center">Evaluation/Activities</p> <p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>	<p align="center">Evaluation/Activities</p> <p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum. Test: On the concepts of the Definite Integral.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>

Week 11		Week 12	
Performance Standards		Performance Standards	
<p><i>The students will:</i> 5.0 Students know the chain rule and its proof and applications to the calculation of the derivative of a variety of composite functions.</p>		<p><i>The students will:</i> 4.4 Students derive derivative formulas and use them to find the derivatives of algebraic, trigonometric, inverse trigonometric, exponential, and logarithmic functions. 12.0 Students use differentiation to solve related rate problems in a variety of pure and applied contexts.</p>	
Unit/Topic/Lesson UNIT FOUR Differentiation Rules		Unit/Topic/Lesson UNIT FOUR Differentiation Rules	
<ol style="list-style-type: none"> 1. Derivative of a Constant 2. The Constant Multiple Rule 3. The Sum and Difference Rule 4. The Power Rule 		<ol style="list-style-type: none"> 1. Differentiating Exponential Functions 2. Calculating the Derivatives with Various Bases Including e. 3. The Product Rule 4. The Quotient Rule 	
Mission and Expectations		Mission and Expectations	
<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 		<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 	
Objectives	Essential Question	Objectives	Essential Question
<ol style="list-style-type: none"> 1. To use the various derivative rules for basic functions. 2. To understand the connection between the first and second derivative of a function. 	<p>How do you determine which rule should be used to determine the derivative of a function?</p>	<ol style="list-style-type: none"> 1. To continue to use different rules for finding the derivative of a function. 2. To use the appropriate method to find a derivative. 	<p>How is the quotient rule for derivatives related to the product rule for derivatives?</p>
Teacher Resources	Media Resources	Teacher Resources	Media Resources
<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Chapter Four lessons 2. Chapter Four Practice Problems 3. Chapter Four Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad. 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Chapter Four lessons 2. Chapter Four Practice Problems 3. Chapter Four Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad.
Evaluation/Activities	Completion date:	Evaluation/Activities	Completion date:
<p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completed by:</p> <p>Comments:</p>	<p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completed by:</p> <p>Comments:</p>

Week 13		Week 14	
<p align="center">Performance Standards</p> <p><i>The students will:</i> 5.0 Students know the chain rule and its proof and applications to the calculation of the derivative of a variety of composite functions. 6.0 Students find the derivatives of parametrically defined functions and use implicit differentiation in a wide variety of problems in physics, chemistry, economics, and so forth.</p>		<p align="center">Performance Standards</p> <p><i>The students will:</i> 10.0 Students know Newton's method for approximating the zeros of a function. 21.0 Students understand the algorithms involved in Simpson's rule and Newton's method. They use calculators or computers or both to approximate integrals numerically.</p>	
<p align="center">Unit/Topic/Lesson UNIT FOUR Differentiation Rules</p> <ol style="list-style-type: none"> Derivatives of Trigonometric Functions The Chain Rule The Derivative of the Natural Logarithmic Function Implicit Differentiation 		<p align="center">Unit/Topic/Lesson UNIT FOUR Differentiation Rules</p> <ol style="list-style-type: none"> Related Rates of Change Linear Approximations Newton's Method for Finding Zeros of Functions 	
<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>		<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>	
<p align="center">Objectives</p> <ol style="list-style-type: none"> To use the Chain Rule to find derivatives. To find derivatives of trigonometric and natural logarithmic functions. To use implicit differentiation to find derivatives of functions defined implicitly. 	<p align="center">Essential Question</p> <p>How is the Chain Rule used to find the derivative of a composite function?</p>	<p align="center">Objectives</p> <ol style="list-style-type: none"> To solve physical problems by establishing the connection between derivatives of related functions. To use the Chain Rule and implicit differentiation with respect to time. To use a tangent line to approximate the graph of a function. To use Newton's Method for finding zeros of functions. 	<p align="center">Essential Question</p> <p>How do you use Newton's Method to find the zeros of a function?</p>
<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Chapter Four lessons Chapter Four Practice Problems Chapter Four Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad. 	<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Chapter Four lessons Chapter Four Practice Problems Chapter Four Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad.
<p align="center">Evaluation/Activities</p> <p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>	<p align="center">Evaluation/Activities</p> <p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum. Test: On the concepts of Differentiation Rules.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>

Week 15		Week 16	
<p align="center">Performance Standards</p> <p><i>The students will:</i> 9.0 Students use differentiation to sketch, by hand, graphs of functions. They can identify maxima, minima, inflection points, and intervals in which the function is increasing and decreasing.</p>		<p align="center">Performance Standards</p> <p><i>The students will:</i> 9.0 Students use differentiation to sketch, by hand, graphs of functions. They can identify maxima, minima, inflection points, and intervals in which the function is increasing and decreasing.</p>	
<p align="center">Unit/Topic/Lesson UNIT FIVE Applications of the Derivatives</p> <ol style="list-style-type: none"> Increasing and Decreasing Functions Critical Numbers and Critical Points Maximum and Minimum Points (Local and Global) The First Derivative Test The Extreme Value Theorem 		<p align="center">Unit/Topic/Lesson UNIT FIVE Applications of the Derivatives</p> <ol style="list-style-type: none"> Concavity Inflection Points The Second Derivative Test Limits Involving Infinity Horizontal Asymptotes 	
<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>		<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>	
<p align="center">Objectives</p> <ol style="list-style-type: none"> To find the critical numbers and points for a function. To determine where an interval is increasing or decreasing. To determine local and global maximums and minimums. To use the Extreme Value Theorem to determine the existence of global extrema. 	<p align="center">Essential Question</p> <p>What are the purposes in finding critical points for a function?</p>	<p align="center">Objectives</p> <ol style="list-style-type: none"> To find inflection points. To use inflection points and the Second Derivative Test to determine concavity of a function on an interval. To find limits involving infinity. To find horizontal and vertical asymptotes for functions. 	<p align="center">Essential Question</p> <p>How do you use the Second Derivative Test to determine the concavity on an interval?</p>
<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> Chapter Five lessons Chapter Five Practice Problems Chapter Five Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad. 	<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> Chapter Five lessons Chapter Five Practice Problems Chapter Five Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad.
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Week 17		Week 18	
Performance Standards		Performance Standards	
<p><i>The students will:</i> 8.0 Students know and can apply Rolle's theorem, the mean value theorem, and L'Hopital's rule. 11.0 Students use differentiation to solve optimization (maximum-minimum problems) in a variety of pure and applied contexts.</p>		<p><i>The students will:</i> 15.0 Students demonstrate knowledge and proof of the fundamental theorem of calculus and use it to interpret integrals as antiderivatives.</p>	
Unit/Topic/Lesson UNIT FIVE Applications of the Derivatives		Unit/Topic/Lesson UNIT FIVE Applications of the Derivatives	
<ol style="list-style-type: none"> 1. Optimization Problems 2. The Mean Value Theorem 3. Rolle's Theorem 		<ol style="list-style-type: none"> 1. Antiderivatives 2. The General Derivative of a Function 3. Family of Curves 	
Mission and Expectations		Mission and Expectations	
<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 		<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 	
Objectives	Essential Question	Objectives	Essential Question
<ol style="list-style-type: none"> 1. To solve basic optimization problems. 2. To understand the importance of checking critical numbers and end points. 3. To interpret the Mean Value Theorem. 4. To understand the uses of Rolle's Theorem. 	<p>How is Rolle's Theorem simply a special case of the Mean Value Theorem?</p>	<ol style="list-style-type: none"> 1. To reverse the process of differentiation to find antiderivatives. 2. To find the general derivative of a given function. 3. To find the family of curves that satisfy a given situation. 	<p>Why is it important to state the constant C as part of the answer for finding antiderivatives?</p>
Teacher Resources	Media Resources	Teacher Resources	Media Resources
<p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> 1. Chapter Five lessons 2. Chapter Five Practice Problems 3. Chapter Five Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad. 	<p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> 1. Chapter Five lessons 2. Chapter Five Practice Problems 3. Chapter Five Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad.
Evaluation/Activities	Completion date:	Evaluation/Activities	Completion date:
<p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completed by:</p> <p>Comments:</p>	<p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum. Test: On the concepts of Applications of Derivatives.</p>	<p>Completed by:</p> <p>Comments:</p>

Week 19		Week 20	
Performance Standards		Performance Standards	
<p><i>The students will:</i> 16.0 Students use definite integrals in problems involving area, velocity, acceleration, volume of a solid, area of a surface of revolution, length of a curve, and work.</p>		<p><i>The students will:</i> 17.0 Students compute, by hand, the integrals of a wide variety of functions by using techniques of integration, such as substitution, integration by parts, and trigonometric substitution. They can also combine these techniques when appropriate.</p>	
Unit/Topic/Lesson UNIT SIX Integrals		Unit/Topic/Lesson UNIT SIX Integrals	
<ol style="list-style-type: none"> 1. The Definite Integral 2. Rules for Definite Integrals 3. Additive Interval Rule 4. Inequality Rule 5. The Definite Integral Rule of a Rate 		<ol style="list-style-type: none"> 1. Functions Defined by Integrals 2. Accumulation Functions 3. Review of the Fundamental Theorem of Calculus 	
Mission and Expectations		Mission and Expectations	
<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 		<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 	
Objectives	Essential Question	Objectives	Essential Question
<ol style="list-style-type: none"> 1. To understand and use the rules for definite integrals to solve problems. 2. To evaluate definite integrals using the Fundamental Theorem of Calculus. 3. To work with the various applications of the definite integral. 	<p>How do you break up a single definite integral and make it the sum or difference of two definite integrals?</p>	<ol style="list-style-type: none"> 1. To use the concept of definite integrals as an accumulation function. 2. To understand the geometric interpretation of accumulation function. 3. To use the graphing calculator an fnInt to graph accumulation. 	<p>How do you use the concept of the definite integral as an accumulation function?</p>
Teacher Resources	Media Resources	Teacher Resources	Media Resources
<i>Best Calculus Concepts and Calculators ©2006</i> <ol style="list-style-type: none"> 1. Chapter Six lessons 2. Chapter Six Practice Problems 3. Chapter Six Pre-Made Assessments 	<i>Best Calculus Concepts and Calculators ©2006</i> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad. 	<i>Best Calculus Concepts and Calculators ©2006</i> <ol style="list-style-type: none"> 1. Chapter Six lessons 2. Chapter Six Practice Problems 3. Chapter Six Pre-Made Assessments 	<i>Best Calculus Concepts and Calculators ©2006</i> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad.
Evaluation/Activities		Evaluation/Activities	
<p>Homework: To be given daily on each introduced topic</p> <p>Review: All weekly concepts.</p> <p>Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>	<p>Homework: To be given daily on each introduced topic</p> <p>Review: All weekly concepts.</p> <p>Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>

Week 21		Week 22	
Performance Standards		Performance Standards	
<p><i>The students will:</i> 16.0 Students use definite integrals in problems involving area, velocity, acceleration, volume of a solid, area of a surface of revolution, length of a curve, and work.</p>		<p><i>The students will:</i> 5.0 Students know the chain rule and its proof and applications to the calculation of the derivative of a variety of composite functions.</p>	
Unit/Topic/Lesson UNIT SIX Integrals		Unit/Topic/Lesson UNIT SEVEN Finding Antiderivatives	
<ol style="list-style-type: none"> 1. Areas of Plane Regions 2. Area Under the Curve 3. Area of a Region Between Two Curves 4. Using the Graphing Calculator to Find Areas 		<ol style="list-style-type: none"> 1. Antiderivatives of Various Functions 2. The Chain Rule 	
Mission and Expectations		Mission and Expectations	
<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 		<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 	
Objectives	Essential Question	Objectives	Essential Question
<ol style="list-style-type: none"> 1. To find the area of a plane region using the concept of definite integrals. 2. To find the area under the curve using the concept of definite integrals. 3. To find the area between two curves using the concept of definite integrals. 4. To use a graphing calculator to find all of these areas. 	<p>How do you find the area under the curve or the area of the region between two functions?</p>	<ol style="list-style-type: none"> 1. To find the general antiderivatives of various functions. 2. To use differentiation rules to determine antiderivatives. 3. To integrate a product by inverting the Chain Rule. 	<p>Why is integrating a product of two functions possible and when can you integrate these products?</p>
Teacher Resources	Media Resources	Teacher Resources	Media Resources
<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Chapter Six lessons 2. Chapter Six Practice Problems 3. Chapter Six Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad. 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Chapter Seven lessons 2. Chapter Seven Practice Problems 3. Chapter Seven Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad.
Evaluation/Activities		Evaluation/Activities	
<p>Homework: To be given daily on each introduced topic</p> <p>Review: All weekly concepts.</p> <p>Quiz: Assessments given as warranted by the curriculum.</p> <p>Test: On the concepts of Integrals.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>	<p>Homework: To be given daily on each introduced topic</p> <p>Review: All weekly concepts.</p> <p>Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>

Week 23		Week 24	
Performance Standards		Performance Standards	
<p><i>The students will:</i> 17.0 Students compute, by hand, the integrals of a wide variety of functions by using techniques of integration, such as substitution, integration by parts, and trigonometric substitution. They can also combine these techniques when appropriate.</p>		<p><i>The students will:</i> 18.0 Students know the definitions and properties of inverse trigonometric functions and the expression of these functions as indefinite integrals. 20.0 Students compute the integrals of trigonometric functions by using the techniques noted above.</p>	
Unit/Topic/Lesson UNIT SEVEN Finding Antiderivatives		Unit/Topic/Lesson UNIT SEVEN Finding Antiderivatives	
<ol style="list-style-type: none"> 1. The Substitution Method for Antiderivatives 2. The Substitution Method for Definite Integrals 3. Integration by Parts 		<ol style="list-style-type: none"> 1. Trigonometric Functions and Their Inverses 2. Derivatives Formulas and Integration Rules Involving Inverse Trigonometric Functions 3. Numerical Integration 4. The Midpoint Rule 5. The Trapezoid Rule 	
Mission and Expectations		Mission and Expectations	
<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 		<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 	
Objectives	Essential Question	Objectives	Essential Question
<ol style="list-style-type: none"> 1. To learn and apply the procedure for substitution to find the antiderivatives of a function. 2. To use the substitution method to solve definite integrals. 3. To understand and use the concept of integration by parts to solve various integral problems. 	<p>What is the connection between integration by parts and the product rule for differentiation?</p>	<ol style="list-style-type: none"> 1. To work with the concepts of inverse trigonometric functions to solve integration problems. 2. To calculate numerical approximations to definite integrals such as Riemann sums, the Midpoint Rule, the trapezoid Rule, and Simpson's Rule. 	<p>How do you use each of the approximation for the definite integral and how do you determine their accuracy?</p>
Teacher Resources	Media Resources	Teacher Resources	Media Resources
<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Chapter Seven lessons 2. Chapter Seven Practice Problems 3. Chapter Seven Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad. 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Chapter Seven lessons 2. Chapter Seven Practice Problems 3. Chapter Seven Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad.
Evaluation/Activities		Evaluation/Activities	
<p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date: Completed by: Comments:</p>	<p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum. Test: On the concepts of Finding Antiderivatives.</p>	<p>Completion date: Completed by: Comments:</p>

Week 25		Week 26	
Performance Standards		Performance Standards	
<p><i>The students will:</i> 14.0 Students apply the definition of the integral to model problems in physics, economics, and so forth, obtaining results in terms of integrals.</p>		<p><i>The students will:</i> 16.0 Students use definite integrals in problems involving area, velocity, acceleration, volume of a solid, area of a surface of revolution, length of a curve, and work.</p>	
Unit/Topic/Lesson UNIT EIGHT Using the Definite Integral		Unit/Topic/Lesson UNIT EIGHT Using the Definite Integral	
<ol style="list-style-type: none"> Net Distance Traveled Total Distance Traveled 		<ol style="list-style-type: none"> Volume of Solids by Slicing Volume of Solid with Known Cross Section Volumes of Solid of Revolution Using Disk and Washer Methods 	
Mission and Expectations		Mission and Expectations	
<ol style="list-style-type: none"> Critical Thinking Skills Problem Solving Skills Test Taking Skills 		<ol style="list-style-type: none"> Critical Thinking Skills Problem Solving Skills Test Taking Skills 	
Objectives	Essential Question	Objectives	Essential Question
<ol style="list-style-type: none"> To calculate the total and net distances traveled using integrals. To understand the concept of negative velocity. To work with and understand changes in direction of motion. 	<p>Why is it about that the distance traveled be represented by the absolute value of a function that is to be integrated?</p>	<ol style="list-style-type: none"> To determine the volume of a solid of revolution by the disc and washer methods of slicing. To find the volume of a solid with known cross-sectional areas. 	<p>How do you use integration to find the area of a solid with a known cross-sectional area?</p>
Teacher Resources	Media Resources	Teacher Resources	Media Resources
<p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> Chapter Eight lessons Chapter Eight Practice Problems Chapter Eight Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad. 	<p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> Chapter Eight lessons Chapter Eight Practice Problems Chapter Eight Pre-Made Assessments 	<p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad.
Evaluation/Activities		Evaluation/Activities	
<p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date: Completed by: Comments:</p>	<p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date: Completed by: Comments:</p>

Week 27		Week 28	
<p align="center">Performance Standards</p> <p><i>The students will:</i> 16.0 Students use definite integrals in problems involving area, velocity, acceleration, volume of a solid, area of a surface of revolution, length of a curve, and work.</p>		<p align="center">Performance Standards</p> <p><i>The students will:</i> 14.0 Students apply the definition of the integral to model problems in physics, economics, and so forth, obtaining results in terms of integrals.</p>	
<p align="center">Unit/Topic/Lesson UNIT EIGHT Using the Definite Integral</p> <ol style="list-style-type: none"> Volumes of Solid of Revolution by the Shell Method Average Value of a Function over an Interval Mean Value Theorem for Integrals 		<p align="center">Unit/Topic/Lesson UNIT EIGHT Using the Definite Integral</p> <ol style="list-style-type: none"> Application of the Definite Integral Density Work 	
<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>		<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>	
<p align="center">Objectives</p> <ol style="list-style-type: none"> To use the shell method of finding the volume of a solid of revolution when the disc/washer method does not work. To find the area value of a function over an interval using definite integrals. To review the concepts involved in the Mean Value Theorem. 	<p align="center">Essential Question</p> <p>How do you find the volume of a solid of revolution and how do you decide which method to use to solve for this volume?</p>	<p align="center">Objectives</p> <ol style="list-style-type: none"> To define the definite integral as a limit of sums. To use definite integrals to solve problems relating to both work and density concepts. To solve work problems and other real world applications for definite integrals. 	<p align="center">Essential Question</p> <p>How do you use the concept of definite integrals to solve various real world situations?</p>
<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Chapter Eight lessons Chapter Eight Practice Problems Chapter Eight Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad. 	<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Chapter Eight lessons Chapter Eight Practice Problems Chapter Eight Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad.
<p align="center">Evaluation/Activities</p> <p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>	<p align="center">Evaluation/Activities</p> <p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum. Test: On the concepts of Using the Definite Integral.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>

Week 29		Week 30	
<p align="center">Performance Standards</p> <p><i>The students will:</i> 27.0 Students know the techniques of solution of selected elementary differential equations and their applications to a wide variety of situations, including growth-and-decay problems.</p>		<p align="center">Performance Standards</p> <p><i>The students will:</i> 27.0 Students know the techniques of solution of selected elementary differential equations and their applications to a wide variety of situations, including growth-and-decay problems.</p>	
<p align="center">Unit/Topic/Lesson UNIT NINE Differential Equations</p> <ol style="list-style-type: none"> 1. First-Order and Second-Order Differential Equations 2. General Solutions 3. Initial Conditions 		<p align="center">Unit/Topic/Lesson UNIT NINE Differential Equations</p> <ol style="list-style-type: none"> 1. Slope Fields 2. Solving Differential Equations Numerically 3. Euler's Method 	
<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>		<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>	
<p align="center">Objectives</p> <ol style="list-style-type: none"> 1. To understand the terminology involved in differential equations; such as order, general solution, and initial conditions. 2. To use antidifferentiation to solve simple differential equations. 	<p align="center">Essential Question</p> <p>How do you use antidifferentiation to solve simple differential equations?</p>	<p align="center">Objectives</p> <ol style="list-style-type: none"> 1. To interpret values of the derivative as slopes of tangent lines. 2. To draw tangent segments to form a slope field. 3. To use a slope field to visualize the solutions to a differential equation. 4. To use slope fields to sketch particular solutions. 5. To solve differential equations numerically. 6. To use Euler's Method by hand and with a calculator. 	<p align="center">Essential Question</p> <p>How do you connect to concepts of Euler's Method and slope fields?</p>
<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Chapter Nine lessons 2. Chapter Nine Practice Problems 3. Chapter Nine Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad. 	<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Chapter Nine lessons 2. Chapter Nine Practice Problems 3. Chapter Nine Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators ©2006</i></p> <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad.
<p align="center">Evaluation/Activities</p> <p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>	<p align="center">Evaluation/Activities</p> <p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>

Week 31		Week 32	
<p align="center">Performance Standards</p> <p><i>The students will:</i> 27.0 Students know the techniques of solution of selected elementary differential equations and their applications to a wide variety of situations, including growth-and-decay problems.</p>		<p align="center">Performance Standards</p> <p><i>The students will:</i> 8.0 Students know and can apply Rolle's theorem, the mean value theorem, and L'Hopital's rule.</p>	
<p align="center">Unit/Topic/Lesson UNIT NINE Differential Equations</p> <ol style="list-style-type: none"> Solving Differential Equations Symbolically Separation of Variables Exponential Growth 		<p align="center">Unit/Topic/Lesson UNIT TEN L'Hopital's Rule, Improper Integrals, and Partial Fractions</p> <ol style="list-style-type: none"> L'Hopital's Rule Extension of L'Hopital's Rule 	
<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>		<p align="center">Mission and Expectations</p> <p>1. <i>Critical Thinking Skills</i> 2. <i>Problem Solving Skills</i> 3. <i>Test Taking Skills</i></p>	
<p align="center">Objectives</p> <ol style="list-style-type: none"> To separate variables to solve differential equations. To use the separation of variables to solve growth and decay problems. To work with the concepts of exponential growth as a differential equation. 	<p align="center">Essential Question</p> <p>How do you solve a differential equation by using separation of variables?</p>	<p align="center">Objectives</p> <ol style="list-style-type: none"> To apply L'Hopital's Rule to evaluate limits involving indeterminate forms. To convert from different indeterminate forms to involve division. 	<p align="center">Essential Question</p> <p>How is L'Hopital's Rule used to find limits involving indeterminate forms?</p>
<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> Chapter Nine lessons Chapter Nine Practice Problems Chapter Nine Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad. 	<p align="center">Teacher Resources</p> <p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> Chapter Ten lessons Chapter Ten Practice Problems Chapter Ten Pre-Made Assessments 	<p align="center">Media Resources</p> <p><i>Best Calculus Concepts and Calculators</i> ©2006</p> <ol style="list-style-type: none"> Electronic Advanced Placement sample tests. Electronic Chapter Review Problems. Electronic Chapter Tests. Pre-made PowerPoint Presentations. Geometer Sketchpad.
<p align="center">Evaluation/Activities</p> <p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum. Test: On the concepts of Differential Equations.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>	<p align="center">Evaluation/Activities</p> <p>Homework: To be given daily on each introduced topic Review: All weekly concepts. Quiz: Assessments given as warranted by the curriculum.</p>	<p>Completion date:</p> <p>Completed by:</p> <p>Comments:</p>

Week 33		Week 34	
Performance Standards		Performance Standards	
<p><i>The students will:</i> 22.0 Students understand improper integrals as limits of definite integrals.</p>		<p><i>The students will:</i> 17.0 Students compute, by hand, the integrals of a wide variety of functions by using techniques of integration, such as substitution, integration by parts, and trigonometric substitution. They can also combine these techniques when appropriate. 19.0 Students compute, by hand, the integrals of rational functions by combining the techniques in standard 17.0 with the algebraic techniques of partial fractions and completing the square.</p>	
Unit/Topic/Lesson UNIT TEN L'Hopital's Rule, Improper Integrals, and Partial Fractions		Unit/Topic/Lesson UNIT TEN L'Hopital's Rule, Improper Integrals, and Partial Fractions	
<ol style="list-style-type: none"> 1. Improper Integrals 2. Improper Integrals with Infinite Limits of Integration 3. Upper and Lower Limits of Integration 4. Improper Integrals with Unbounded Integrands 		<ol style="list-style-type: none"> 1. Partial Fractions 2. Integration Methods Using Partial Fractions 	
Mission and Expectations		Mission and Expectations	
<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 		<ol style="list-style-type: none"> 1. Critical Thinking Skills 2. Problem Solving Skills 3. Test Taking Skills 	
Objectives	Essential Question	Objectives	Essential Question
<ol style="list-style-type: none"> 1. To identify improper integrals. 2. To distinguish between convergent and divergent improper integrals. 3. To find upper and lower limits of integration. 	What makes a particular integral improper?	<ol style="list-style-type: none"> 1. To break an algebraic fraction apart into a sum. 2. To factor denominators of fractions. 3. To integrate by using the concept of partial fractions. 	How do you break an algebraic fraction into a sum of simpler fractions for the purpose of integration?
Teacher Resources	Media Resources	Teacher Resources	Media Resources
<i>Best Calculus Concepts and Calculators</i> ©2006 <ol style="list-style-type: none"> 1. Chapter Ten lessons 2. Chapter Ten Practice Problems 3. Chapter Ten Pre-Made Assessments 	<i>Best Calculus Concepts and Calculators</i> ©2006 <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad. 	<i>Best Calculus Concepts and Calculators</i> ©2006 <ol style="list-style-type: none"> 1. Chapter Ten lessons 2. Chapter Ten Practice Problems 3. Chapter Ten Pre-Made Assessments 	<i>Best Calculus Concepts and Calculators</i> ©2006 <ol style="list-style-type: none"> 1. Electronic Advanced Placement sample tests. 2. Electronic Chapter Review Problems. 3. Electronic Chapter Tests. 4. Pre-made PowerPoint Presentations. 5. Geometer Sketchpad.
Evaluation/Activities	Completion date:	Evaluation/Activities	Completion date:
<p>Homework: To be given daily on each introduced topic</p> <p>Review: All weekly concepts.</p> <p>Quiz: Assessments given as warranted by the curriculum.</p>	Completed by:	<p>Homework: To be given daily on each introduced topic</p> <p>Review: All weekly concepts.</p> <p>Quiz: Assessments given as warranted by the curriculum.</p> <p>Test: On the concepts of L'Hopital's Rule, Improper Integrals and Partial Fractions.</p>	Comments:
	Comments:		Comments:

