

Planned Course: Calculus Unit: Integration Estimated Time: 9 weeks		Course Number: 318 Grade Level: 10-12 Level/Track: college		Department: Math Date Approved:	
PA Academic Standards	Core Concepts (in question format) • Skills/Knowledge	Activities/Strategies/Study Skills (identify some activities as remedial or enrichment activities)	Assessments (include types and topics)		
<p>2.11.11.D Determine sums of finite sequences of numbers and infinite geometric series.</p> <p>2.11.11.E Estimate areas under curves using sequences of areas.</p>	<p>Can the students integrate a function using a variety of techniques?</p> <ul style="list-style-type: none"> <li>• SWBAT apply the basic integration rules.</li> <li>• SWBAT integrate polynomial functions.</li> <li>• SWBAT rewrite expressions before integrating.</li> <li>• SWBAT solve a simple differential equation.</li> <li>• SWBAT solve applications involving gravity.</li> <li>• SWBAT evaluate the indefinite integral and check by differentiation.</li> <li>• SWBAT recognize the <math>f(g(x))g'(x)</math> pattern.</li> <li>• SWBAT integrate by multiplying and</li> </ul>	<ul style="list-style-type: none"> <li>• Have students divide the area under a curve into inscribed and circumscribed rectangles and trapezoids, and use these divisions to approximate the area under the curve.</li> <li>• Use the limit of a Riemman Sum to define the definite integral.</li> <li>• Have students determine the area under the curve using anti-derivatives and properties of integrals.</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes</li> <li>• Tests</li> <li>• Homework</li> <li>• Graded assignments</li> <li>• Classroom participation</li> <li>• Questioning</li> <li>• Observation</li> </ul>		


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	dividing by a constant.  <ul style="list-style-type: none"> <li>• SWBAT integrate by change of variable (method of example 6).</li> <li>• SWBAT integrate by substitution and the General Power Rule.</li> <li>• SWBAT integrate by u-substitution.</li> </ul>				
2.11.11.E Estimate areas under curves using sequences of areas.	Can the students apply the sigma notation formulas to different types of problems?  <ul style="list-style-type: none"> <li>• SWBAT find the sum of a sigma notation.</li> <li>• SWBAT use sigma notation to write the given sum.</li> <li>• SWBAT use the properties of sigma notation and summation formulas to evaluate a given sum.</li> <li>• SWBAT find the limit</li> </ul>			<ul style="list-style-type: none"> <li>• Quizzes</li> <li>• Tests</li> <li>• Homework</li> <li>• Graded assignments</li> <li>• Classroom participation</li> <li>• Questioning</li> <li>• Observation</li> </ul>	

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	<p>of a given sequence as <math>n</math> approaches infinity.</p> <ul style="list-style-type: none"> <li>• SWBAT use the properties of sigma notation, find a formula for the given sum of <math>n</math> terms and then find the limit as <math>n</math> approaches infinity.</li> <li>• SWBAT use the upper and lower sums to approximate the area of a given region using an indicated number of subdivisions.</li> <li>• SWBAT use the limit process to find the area of the region between the graph of a function and the <math>x</math>-axis over a given interval.</li> </ul> <p>Can the students evaluate a definite integral and use definite integrals to find area?</p> <ul style="list-style-type: none"> <li>• SWBAT set up the</li> </ul>		
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	<p>definite integral that yields the area of the given region.</p> <ul style="list-style-type: none"> <li>SWBAT sketch the region whose area is indicated by the given definite integral and use a geometric formula to evaluate the integral.</li> <li>SWBAT use the Fundamental Theorem to evaluate definite integrals including absolute value and change of variables method.</li> <li>SWBAT use the log rule for integration.</li> <li>SWBAT use the log rule with u-substitution for integration.</li> <li>SWBAT integrate using the six basic trigonometric functions.</li> </ul>		
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