Name:_____

Teacher:_____

AP Calculus Performance indicator rubrics

Brattleboro Union High School

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Mathematical Practices for AP Calculus

Calculus: Implementing Mathematical Processes

HSC.MP1	Beginning	Developing	Proficient	Exemplary
Implementing Mathematical Processes	I am beginning to implement mathematical processes.	I am partially able to implement mathematical processes.	I can implement mathematical processes.	

Transferable Skills:
If a student "meets the standard" they have met the following transferable skill(s):
2.c: Apply knowledge in familiar and new contexts.
3.c Identify patterns, trends, and relationships that apply to solutions
3.d Analyze, evaluate, and synthesize evidence, arguments, claims, and beliefs

Skills and Standards

1.A Identify the question to be answered or problem to be solved (not assessed).
1.B Identify key and relevant information to answer a question or solve a problem (not assessed).
1.C Identify an appropriate mathematical rule or procedure based on the classification of a given expression (e.g., Use the chain rule to find the derivative of a composite function).
1.D Identify an appropriate mathematical rule or procedure based on the relationship between concepts (e.g., rate of change and accumulation) or processes (e.g., differentiation and its inverse process, anti-differentiation) to solve problems.
1.E Apply appropriate mathematical rules or procedures, with and without technology.
1.F Explain how an approximated value relates to the actual value.

Calculus: Connecting Representations

HSC.MP2	Beginning	Developing	Proficient	Exemplary
Connecting Representations	I am beginning to connect representations	I am partially able to connect representations	I can connect representations	

Transferable Skills:

If a student "meets the standard" they have met the following transferable skill(s):

1.a: Demonstrate organized and purposeful communication

2.i: Persevere in challenging situations

3.b: Frame questions, make predictions, and design data collection and analysis strategies

3.c: Identify patterns, trends, and relationships that apply to solutions.

Skills and Standards

2.A   Identify common underlying structures in problems involving different contextual situations.

2.B   Identify mathematical information from graphical, numerical, analytical, and/or verbal representations.

2.C   Identify a re-expression of mathematical information presented in a given representation.

2.D   Identify how mathematical characteristics or properties of functions are related in different representations.

2.E   Describe the relationships among different representations of functions and their derivatives

Calculus: Justification

HSC.MP3	Beginning	Developing	Proficient	Exemplary
Justification	I am beginning to appropriately justify my mathematical reasoning and solutions	I am partially able to appropriately justify my mathematical reasoning and solutions	I can appropriately justify my mathematical reasoning and solutions	

Transferable Skills:

If a student "meets the standard" they have met the following transferable skill(s):

1.a: Demonstrate organized and purposeful communication

1.b: Use evidence and logic appropriately in communication

3.h: Persist in solving challenging problems and learn from failure

5.c: Apply systems thinking to understand the interaction and influence of related parts on each other, and on outcomes.

5.d: Use evidence and reasoning to justify claims

5.e: Develop and use models to explain phenomena.

Skills and Standards

3.A Apply technology to develop claims and conjectures (not assessed).

3.B Identify an appropriate mathematical definition, theorem, or test to apply.

3.C Confirm whether hypotheses or conditions of a selected definition, theorem, or test have been satisfied.

3.D Apply an appropriate mathematical definition, theorem, or test.

3.E Provide reasons or rationales for solutions and conclusions.

3.F Explain the meaning of mathematical solutions in context.

3.G Confirm that solutions are accurate and appropriate.

Calculus: Communication & Notation

HSC.MP4	Beginning	Developing	Proficient	Exemplary
Communication & Notation	I am beginning to use correct notation, language, and mathematical conventions to communicate results or solutions	I am partially able to use correct notation, language, and mathematical conventions to communicate results or solutions	I can use correct notation, language, and mathematical conventions to communicate results or solutions	

Transferable Skills:

If a student "meets the standard" they have met the following transferable skill(s):

1.a: Demonstrate organized and purposeful communication

2.c: Apply knowledge in familiar and new contexts

2.f: Analyze the accuracy, bias, and usefulness of information

2.h: Use technology and digital media strategically and capably

Skills and Standards

4.A   Use precise mathematical language.

4.B   Use appropriate units of measure.

4.C Use appropriate mathematical symbols and notation (e.g., Represent a derivative using f '(x), y', dy and dx).

4.D Use appropriate graphing techniques.

4.E   Apply appropriate rounding procedures.