Mathematical Reasoning Rubric

Criteria	Conceptual Understanding	Strategies and Reasoning	Computation and Execution	Communication	Insights
4	Clarifies the problem's meaning by uncovering implied information, choosing procedures that would lead to a solution and demonstrating an understanding of precise terminology.	Chooses insightful and effective strategies for solving the problem and proves the approach was valid and solution correct through examples/ counterexamples.	Flawlessly executes computations and visual representations with clear support for one's work.	Explains concisely and/or elegantly one's reasoning, representations and solution. Uses mathematics terminology concisely and correctly.	Creates a general rule for solving real world problems and efficiently explains where it is applicable.
3	Clarifies the problem's meaning by using given information, choosing procedures that solve the problem and demonstrating an understanding of correct terminology.	Chooses appropriate strategies for solving the problem and justifies work that should lead to a complete, correct solution	Executes computations and visual representations and supports one's work.	Explains one's reasoning, representations and solutions in a logical format. Uses mathematics terminology correctly.	Connects individual solutions to form a pattern that can be used to solve multiple problems and real world applications and explains where it is applicable.
2	Demonstrates a basic attempt to represent the problem which leads to a partially correct solution and displays partial understanding of terminology.	Oversimplifies the problem and/or makes leaps in logic by only using some representations of the problem that leads to a partially complete solution.	Executes basic computations with minor errors, incomplete representations, and/or inefficient procedures.	Explains one's reasoning, representations, and solutions with gaps in logic and/or redundancy. Uses some mathematics terminology correctly.	Connects some patterns and relationships to multiple solutions or possible applications.
1	Demonstrates limited understanding of the problem using incorrect information, procedures, and/or terminology.	Chooses a strategy with no apparent logic and demonstrates minimal reasoning.	Demonstrates limited computation ability through errors, representation, and/or labeling.	Attempts to explain, but major gaps in logic, clarity of thinking, and information did not make sense to the audience. Uses mathematics terminology correctly with significant assistance.	Displays limited recognition of patterns and relationships and finds no relevance in possible applications.

Note: If a student does not meet the level 1 criterion but has made an attempt, he/she does not receive a score of zero. Instead, the work should be returned for revision and resubmission.