MATHEMATICS SCORING RUBRIC: A GUIDE TO SCORING EXTENDED-RESPONSE ITEMS

Score Level	MATHEMATICAL KNOWLEDGE: Knowledge of mathematical principles and concepts which result in a correct solution to a problem.	STRATEGIC KNOWLEDGE: Identification and use of important elements of the problem that represent and integrate concepts which yield the solution (e.g., models, diagrams, symbols, algorithms).	EXPLANATION: Written explanation of the rationales and steps of the solution process. A justification of each step is provided. Though important, the length of the response, grammar, and syntax are not the critical elements of this dimension.
4	♦ shows complete understanding of the problem's mathematical concepts and principles ♦ uses appropriate mathematical terminology and notations including labeling answer if appropriate ♦ executes algorithms and computations completely and correctly	♦ identifies all important elements of the problem and shows complete understanding of the relationships among elements ♦ shows complete evidence of an appropriate strategy that would correctly solve the problem	♦ gives a complete written explanation of the solution process; clearly explains what was done and why it was done ♦ may include a diagram with a complete explanation of all its elements
3	♦ shows nearly complete understanding of the problem's mathematical concepts and principles ♦ uses mostly correct mathematical terminology and notations ♦ executes algorithms completely; computations are generally correct but may contain minor errors	♦ identifies most of the important elements of the problem and shows a general understanding of the relationships among them ♦ shows nearly complete evidence of an appropriate strategy for solving the problem	♦ gives a nearly complete written explanation of the solution process; clearly explains what was done and begins to address why it was done ♦ may include a diagram with most of its elements explained
2	♦ shows some understanding of the problem's mathematical concepts and principles ♦ uses some correct mathematical terminology and notations ♦ may contain major algorithmic or computational errors	♦ identifies some important elements of the problem but shows only limited understanding of the relationships among them ♦ shows some evidence of a strategy for solving the problem	♦ gives some written explanation of the solution process; either explains what was done or addresses why it was done ♦ explanation is vague, difficult to interpret, or does not completely match the solution process ♦ may include a diagram with some of its elements explained
1	♦ shows limited to no understanding of the problem's mathematical concepts and principles ♦ may misuse or fail to use mathematical terminology and notations ♦ attempts an answer	♦ fails to identify important elements or places too much emphasis on unrelated elements ♦ reflects an inappropriate strategy for solving the problem; strategy may be difficult to identify	♦ gives minimal written explanation of the solution process; may fail to explain what was done and why it was done ♦ explanation does not match presented solution process ♦ may include minimal discussion of the elements in a diagram; explanation of significant elements is unclear
0	♦ no answer attempted	♦ no apparent strategy	♦ no written explanation of the solution process is provided

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The following rubric is used for the extended-response items for grade levels 3 through 8.

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