

## SkyMath Scoring Rubric for Open-Ended Items

### Level 4

The student has demonstrated a full and complete understanding of all concepts and processes embodied in this application. The student has addressed the task in a mathematically sound manner. The response contains evidence of the student's competence in problem-solving and reasoning, computing and estimating and communicating to the full extent that these processes apply to the specified task. The response may, however, contain minor arithmetic errors that do not detract from a demonstration of full understanding.

- Contains a complete response with clear, coherent, unambiguous, and elegant explanation
- Includes clear and simple diagram
- Communicates effectively to an identified audience
- Shows understanding of the question's mathematical ideas and processes
- Identifies all the important elements of the question
- Includes examples and counter examples
- Gives strong supporting arguments
- Goes beyond the requirements of the problem

### Level 3

The student has demonstrated reasonable understanding of the essential mathematical concepts and process embodied in this application. The student's response contains most of the attributes of an appropriate response including a mathematically sound approach and evidence of competence with applicable mathematical processes, but contains flaws that do not diminish countervailing evidence that the student comprehends the essential mathematical ideas addressed by this task. Such flaws include errors ascribable to faulty reading, writing, or drawing skills; errors ascribable to insufficient, non-mathematical knowledge; and errors ascribable to negligent or inattentive execution of mathematical processes or algorithms.

- Contains a good solid response with some of the characteristics above, but probably not all
- Explains less elegantly, less completely
- Does not go beyond requirements of the problem

### Level 2

The student has demonstrated a limited understanding of some of the concepts and process embodied in this application. The student's response contains some of the attributes of an appropriate response, but lacks convincing evidence that the student fully comprehends the essential mathematical ideas addressed by this task. Such deficits include evidence of insufficient mathematical knowledge; errors in fundamental mathematical procedures; and other omissions, or anomalies that bring into question the extent of the student's ability to solve problems of this general type.

- Contains a complete response, but the explanation may be muddled
- Presents arguments but incomplete
- Includes diagrams but inappropriate or unclear
- Indicates understanding of mathematical ideas, but not expressed clearly

### Level 1

The student has demonstrated merely an acquaintance with the topic. The student's response is associated with the task in the item, but contains few attributes of an appropriate response. There are significant omissions or anomalies that indicate a basic lack of comprehension in regard to the mathematical ideas and procedures necessary to adequately address the specified task. No evidence is present to suggest that the student has the ability to solve problems of this general type.

- Omits significant parts of the question and response
- Has major errors
- Uses inappropriate strategies

### Level 0

The student does not respond to the problem or the response is completely unrelated to the assessment item.

### Source:

National Council of Supervisors of Mathematics (1996). Great tasks and more!  
Stenmark, J. K. (1991). Mathematics assessment: Myths, models, good questions, and practical suggestions. Reston, VA: National Council of Teachers of Mathematics.