FIGURE 2. Analytic Rubric for Mathematical Problem Solving

Level	Traits and Descriptors			
	Reasoning	**Computation**	**Representation**	**Communication**
4	An efficient and effective strategy is used and progress toward a solution is evaluated. Adjustments in strategy, if needed, are made, or alternative strategies are considered. There is sound mathematical reasoning throughout.	All computations are performed accurately and completely. There is evidence that computations are checked. A correct answer is obtained.	Abstract or symbolic mathematical representations are constructed and refined to analyze relationships, clarify or interpret the problem elements, and guide solutions.	Communication is clear, complete, and appropriate to the audience and purpose. Precise mathematical terminology and symbolic notation are used to communicate ideas and mathematical reasoning.
3	An effective strategy is used, and mathematical reasoning is sound.	Computations are generally accurate. Minor errors do not detract from the overall approach. A correct answer is obtained once minor errors are corrected.	Appropriate and accurate mathematical representations are used to interpret and solve problems.	Communication is generally clear. A sense of audience and purpose is evident. Some mathematical terminology is used to communicate ideas and mathematical reasoning.
2	A partially correct strategy is used, or a correct strategy for solving only part of the task is applied. There is some attempt at mathematical reasoning, but flaws in reasoning are evident.	Some errors in computation prevent a correct answer from being obtained.	An attempt is made to construct mathematical representations, but some are incomplete or inappropriate.	Communication is uneven. There is only a vague sense of audience or purpose. Everyday language is used, *or* mathematical terminology is not always used correctly.
1	No strategy is used, or a flawed strategy is tried that will not lead to a correct solution. There is little or no evidence of sound mathematical reasoning.	Multiple errors in computation are evident. A correct solution is not obtained.	No attempt is made to construct mathematical representations, *or* the representations are seriously flawed.	Communication is unclear and incomplete. There is no awareness of audience or purpose. The language is imprecise and does not use mathematical terminology.

Source: McTighe, J. (2013). *Core learning: Assessing what matters most.* School Improvement Network, p. 91.