

<b>Level</b>	<b>Understanding</b>	<b>Strategies, Reasoning, Procedures</b>	<b>Communication</b>
<b>Novice</b>	There is no solution, or the solution has no relationship to the task.	No evidence of a strategy or procedure, or uses a strategy that does not help solve the problem.	There is no explanation of the solution, the explanation cannot be understood or it is unrelated to the problem.
	Inappropriate concepts are applied and/or procedures are used.	No evidence of mathematical reasoning.	There is no use or inappropriate use of mathematical representations (e.g. figures, diagrams, graphs, tables, etc.).
	The solution addresses none of the mathematical components presented in the task.	There were so many errors in mathematical procedures that the problem could not be resolved.	There is no use, or mostly inappropriate use, of mathematical terminology and notation.
<b>Apprentice</b>	The solution is not complete indicating that parts of the problem are not understood.	Uses a strategy that is partially useful, leading some way toward a solution, but not to a full solution of the problem.	There is an incomplete explanation, it may not be clearly presented.
	The solution addresses some, but not all of the mathematical components presented in the task.	Some evidence of mathematical reasoning.	There is some use of appropriate mathematical representation.
		Could not completely carry out mathematical procedures.	There is some use of mathematical terminology and notation appropriate of the problem.
		Some parts may be correct, but a correct answer is not achieved.	
<b>Practitioner</b>	The solution shows that the student has a broad understanding of the problem and the major concepts necessary for its solution.	Uses a strategy that leads to a solution of the problem.	There is a clear explanation.
		Uses effective mathematical reasoning.	There is appropriate use of accurate mathematical representation.
	The solution addresses all of the components presented in the task.	Mathematical procedures used.	There is effective use of mathematical terminology and notation.
		All parts are correct and a correct answer is achieved.	

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<b>Expert</b>	<p>The solution shows a deep understanding of the problem including the ability to identify the appropriate mathematical concepts and the information necessary for its solution.</p>	<p>Uses a very efficient and sophisticated strategy leading directly to a solution.</p> <p>Employs refined and complex reasoning</p>	<p>There is a clear, effective explanation detailing how the problem is solved. All of the steps are included so that the reader does not need to infer how and why decisions were made.</p>
	<p>The solution completely addresses all mathematical components presented in the task.</p>	<p>Applies procedures accurately to correctly solve the problem and verify the results.</p>	<p>Mathematical representation is actively used as a means of communicating ideas related to the solution of the problem.</p>
	<p>The solution puts to use the underlying mathematical concepts upon which the task is designed.</p>	<p>Verifies solution and/or evaluates the reasonableness of the solution.</p> <p>Makes mathematically relevant observations and/or connections.</p>	<p>There is precise and appropriate use of mathematical terminology and notation.</p>