

# Classic Exemplars Rubric

Level	Understanding	Strategies, Reasoning, Procedures	Communication
<b>Novice</b>	<ul style="list-style-type: none"> <li>• There is no solution, or the solution has no relationship to the task.</li> <li>• Inappropriate concepts are applied and/or procedures are used.</li> <li>• The solution addresses none of the mathematical components presented in the task.</li> </ul>	<ul style="list-style-type: none"> <li>• No evidence of a strategy or procedure, or uses a strategy that does not help solve the problem.</li> <li>• No evidence of mathematical reasoning.</li> <li>• There were so many errors in mathematical procedures that the problem could not be solved.</li> </ul>	<ul style="list-style-type: none"> <li>• There is no explanation of the solution, the explanation cannot be understood or it is unrelated to the problem.</li> <li>• There is no use or inappropriate use of mathematical representations (e.g. figures diagrams, graphs, tables, etc.).</li> <li>• There is no use, or mostly inappropriate use, of mathematical terminology and notation.</li> </ul>
<b>Apprentice</b>	<ul style="list-style-type: none"> <li>• The solution is not complete indicating that parts of the problem are not understood.</li> <li>• The solution addresses some, but not all of the mathematical components presented in the task.</li> </ul>	<ul style="list-style-type: none"> <li>• Uses a strategy that is partially useful, leading some way toward a solution, but not to a full solution of the problem.</li> <li>• Some evidence of mathematical reasoning.</li> <li>• Could not completely carry out mathematical procedures.</li> <li>• Some parts may be correct, but a correct answer is not achieved.</li> </ul>	<ul style="list-style-type: none"> <li>• There is an incomplete explanation; it may not be clearly presented.</li> <li>• There is some use of appropriate mathematical representation.</li> <li>• There is some use of mathematical terminology and notation appropriate of the problem.</li> </ul>
<b>Practitioner</b>	<ul style="list-style-type: none"> <li>• The solution shows that the Student has a broad understanding of the problem and the major concepts necessary for its solution.</li> <li>• The solution addresses <u>all</u> of the mathematical components presented in the task.</li> </ul>	<ul style="list-style-type: none"> <li>• Uses a strategy that leads to a solution of the problem.</li> <li>• Uses effective mathematical reasoning.</li> <li>• Mathematical procedures used.</li> <li>• All parts are correct and a correct answer is achieved.</li> </ul>	<ul style="list-style-type: none"> <li>• There is a clear explanation.</li> <li>• There is appropriate use of accurate mathematical representation.</li> <li>• There is effective use of mathematical terminology and notation.</li> </ul>
<b>Expert</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• The solution completely addresses all mathematical components presented in the task.</li> <li>• The solution puts to use the underlying mathematical concepts upon which the task is designed.</li> </ul>	<ul style="list-style-type: none"> <li>• Uses a very efficient and sophisticated strategy leading directly to a solution.</li> <li>• Employs refined and complex reasoning.</li> <li>• Applies procedures accurately to correctly solve the problem and verify the results.</li> <li>• Verifies solution and/or evaluates the reasonableness of the solution.</li> <li>• Makes mathematically relevant observations and/or connections.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Mathematical representation is actively used as a means of communicating ideas related to the solution of the problem.</li> <li>• There is precise and appropriate use of mathematical terminology and notation</li> </ul>