

Exemplars[®] Classic 3-Criteria Math Rubric

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