|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Level | Understanding and Solving | Strategies, Reasoning and Analyzing | Communication | Connecting and Reflecting |
| Exceeding | * Shows a superior understanding of the problem including the ability to identify the appropriate mathematical concepts and the information necessary for its solution * Completely addresses all mathematical concepts upon with the task is designed * Put to use the underlying mathematical concepts upon which the task is designed * Solution must be complete and correct | * Uses a very efficient and sophisticated strategy leading directly to a solution * Employs refined and complex reasoning * Evaluates the reasonableness of the solution | * 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 effectively used * Precise and effective use of mathematical terminology and notation | * Reflects on mathematical thinking * Makes mathematically relevant observations and connections * Evaluates strategies and solutions |
| Meeting | * Shows an adequate understanding of the problem and the major concepts necessary for its solution * Addresses all of the components presented in the task * Solution must be complete and correct | * Uses a strategy that leads to a solution of the problem * Uses effective mathematical reasoning * All parts are correct and a correct answer is achieved | * Clear explanation given * Appropriate use of accurate mathematical representation * Appropriate use of mathematical terminology and notation | * Reflects on mathematical thinking * Makes mathematically relevant observations and connections * Evaluates strategies and solutions |
| Approaching | * Shows a partial understanding of the problem and the major concepts necessary for its solution * Addresses some, but not all, of the mathematical components presented in the task * Incomplete solution, 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 * Some evidence of mathematical reasoning * Some parts may be correct, but a correct answer is not achieved | * Incomplete explanation; may not be clearly presented * Some use of appropriate mathematical representation * Some use of mathematical terminology and notation appropriate to the problem | * Starting to reflect on mathematical thinking * Starting to make mathematically relevant observations and connections * Starting to evaluate strategies and solutions |
| Not Yet | * Shows limited understanding of the problem and the major concepts necessary for its solution * Inappropriate concepts are applied and/or inappropriate procedures are used * May address some of the mathematical components presented in the task | * Little or no evidence of a strategy or procedure or uses a strategy that does not help solve the problem * Little or no evidence of mathematical reasoning * So many mathematical errors that the problem could not be resolved | * No explanation of the solution, the explanation cannot be understood or it is unrelated to the problem * No use, or mostly inappropriate use, of mathematical terminology and notation | * Not yet able to reflect on math thinking * No mathematically relevant observations and connections * Is not yet aware of strategies and solutions/unable to reflect on |

Joy Nugent, 2017