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|  | 4 | 3 | 2 | 1 |
| **Interpretation:**Understand information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words), including the ability to learn about and interpret unfamiliar quantitative structures | Provides accurate explanations of the information presented in mathematical forms, including situations where new mathematical structures are presented | Provides accurate explanations of information presented in familiar forms, and somewhat accurate explanations in situations involving new structures. | Provides somewhat accurate explanations of information presented in mathematical forms, but occasionally makes minor errors. | Attempts to explain information presented in mathematical forms and demonstrates at least some minimal understanding, but draws incorrect conclusion about what the information means. |
| **Representation:**Convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words). | Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding. | Competently converts relevant information into an appropriate and desired mathematical portrayal. | Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate. | Completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate.  |
| **Application and Analysis:** make judgments and draw conclusions based on the quantitative analysis of data, while recognizing the assumptions used and the other limits of the analysis. | Uses the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from the work. | Uses the quantitative analysis of data as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions from the work. | Uses the quantitative analysis of data as the basis for workmanlike (without inspiration or nuance, ordinary) judgments, drawing plausible conclusions from this work. Some attention to assumptions and limitations is present. | Uses the quantitative analysis of data as the basis for tentative, basic, or flawed judgments. Little or no attention to assumptions and limitations is present. |
| **Communication:**Clearly express the results of the interpretation, application, analysis, and representation of quantitative information in an effective format. | Presents results in an effective format, and explicates them with consistently high quality. | Successfully communicates results, but presentation may be in a less than completely effective format or some parts of the explication may be uneven.  | Communicates results, but problems with format and explication at times interfere with the audience’s understanding of the presentation. | Attempts to communicate results, but significant problems with format and explication make it difficult for audience to understand presentation. |

**QUANTITATIVE REASONING RUBRIC**