

Reason Quantitatively and Symbolically Rubric

Criteria	Absent	Behavior Not Present	Behavior Developing	Behavior Present	Behavior Mastered
Perform accurate calculations <i>Ability to use equations</i>	No calculations are present.	Calculations are attempted but are both incorrect and not comprehensive.	Calculations are attempted but are either incorrect or not comprehensive.	Calculations are clearly presented; minor errors are present.	Calculations are accurate, comprehensive and clearly presented.
Manipulate equations <i>Ability to convert relevant information into various mathematical and/or symbolic forms</i>	No manipulations are present.	Beginning steps may be present but without significant manipulation; does not create an appropriate mathematical equation.	Manipulation is complete but multiple errors exist; does not create an appropriate mathematical equation.	Appropriately uses mathematical rules to rewrite, simplify and/or evaluate equations; creates an appropriate mathematical equation; minor manipulation errors are present.	Skillfully and appropriately uses mathematical rules to rewrite, simplify and/or evaluate equations; creates an appropriate mathematical equation; proper notation is used.
Interpret quantitative information <i>Ability to explain information presented in mathematical and symbolic forms (e.g., graphs, tables, diagrams, equations).</i>	No interpretations are present.	Little to no interpretation of the information; inference is missing or incomplete.	Interpretation of the information is present but incomplete or inaccurate; inference is incomplete.	Provides accurate interpretation of the information but is missing minor components; inferences are made but lack specificity.	Provides accurate interpretation of the information presented in mathematical forms; makes appropriate and specific inferences.
Apply and analyze relevant numerical or symbolic data <i>Ability to make judgments and draw appropriate conclusions based on a quantitative analysis of data, while recognizing the limits of this analysis (such as hypothesis testing).</i>	No application or analysis present	Little to no thoughtful analysis given; a conclusion may be present but it lacks details, insight and careful consideration of the data.	Analysis of the data is complete, conclusions are given but are missing thoughtful judgment and qualification.	Qualitative analysis of the data is present with thoughtful judgment and conclusions, but some minor details are missing.	Qualitative analysis of the data is present and serves as the basis for deep and thoughtful judgments, drawing insightful, careful and qualified conclusions.

Criteria	Absent	Behavior Not Present	Behavior Developing	Behavior Present	Behavior Mastered
<p>Presents results to support conclusions <i>Expressing quantitative evidence in support of the argument or purpose of the work</i></p>	No presentation of results	Presents an argument for which quantitative evidence is pertinent but does not provide adequate explicit quantitative support (e.g., using quasi-quantitative words such as "many," "few," in place of actual quantities.)	Presents results to support conclusions Expressing quantitative evidence in support of the argument or purpose of the work.	Presents quantitative information in connection with the argument or purpose of the work, though data presentation is ineffective or lacks precision and detail.	Presents quantitative information to support the argument or purpose of the work; results are presented effectively with precision and detail.

Rev. November 2022