

ACE 3 Use mathematical, computational, statistical, logical, or other formal reasoning to solve problems, draw inferences, justify conclusions, and determine reasonableness.

	Exemplary 4	Acceptable 3	Developing 2	Deficient 1
Solve Problems	Appropriate and efficient methods are identified and used. Calculations are essentially correct.	Appropriate methods are used and mostly identified. Calculations have, at most, minor errors.	Methods miss a small portion of what is required to solve the problem or calculations have some errors.	Methods are not appropriate for the problem or calculations have critical errors.
Draw Inferences	Provides correct and thorough explanations of information presented as data, graphs, or other mathematical forms. Makes all appropriate inferences, clearly based on calculations, computations, arguments, and/or premises.	Provides correct explanations of information presented as data, graphs, or other mathematical forms. Makes appropriate inferences with some basis in calculations, computations, arguments, and/or premises.	Provides somewhat accurate explanations of information presented in mathematical forms, but occasionally makes minor errors related to computations or units. Correctly makes some inferences with a basis in calculations, computations, arguments, and/or premises.	Some explanations are inaccurate and not made within the interpretive bounds of the analytical methods being employed. Inferences have significant errors or have no basis in calculations, computations, arguments, and/or premises.
Justify Conclusions	Each method, calculation, interpretation, and/or argument is presented clearly, concisely, and completely. Justifications are completely consistent with context, covering all cases.	Most methods, calculations, interpretations, and/or arguments are presented clearly and completely. Justifications are usually consistent with context, covering almost all cases.	Most methods, calculations, interpretations, and/or arguments are presented, but not clearly or completely. Only some of the conclusions are appropriately justified.	Work seems ad hoc, with no serious presentation of methods, interpretations, and/or arguments. Some attempt is made to justify conclusions, but arguments are weak or incorrect.
Determine Reasonableness	Thoroughly addresses the appropriateness of assumptions. Limitations and restrictions of methods and results are clearly identified. Correctness and/or applicability of results are judged in the context of the original problem.	Addresses the appropriateness of some assumptions. Some limitations and restrictions of methods and results are identified. Correctness and/or applicability of results are judged in the context of the original problem.	Makes some progress in determining reasonableness, but misses some key elements of assumptions, limitations and restrictions, and context.	Attempts to assess reasonableness are missing or are not grounded in the context of the application, problem, or task. There is little or no defense of value judgements based upon application of analytical techniques.