



## INVESTIGATE THE WORLD

*How well does the student use mathematics to model and investigate a given issue, situation, or event?*

- **MATH11-12.INV1.MODEL.** Develops a comprehensive mathematical model using all relevant information to describe a situation or to solve a problem, reflects on the process and makes effective revisions, or integrates one or more familiar models to represent a new situation or problem.
- **MATH11-12.INV2.RLTNS.** Demonstrates how mathematical relationships in the model reflect the given situation or problem, using all the relevant information provided and noting reasonable restrictions from the context.
- **MATH11-12.INV3.RPRSN.** Creatively employs familiar mathematical tools, procedures, or representations in a unique way to explore and analyze the given issue, situation, or event.
- **MATH11-12.INV4.SELEC.** Incorporates multiple solution strategies to arrive at a correct approach and solution to the problem, and revises strategy when appropriate.
- **MATH11-12.INV5.STRTG.** Selects multiple appropriate strategies to verify the solution with respect to both the mathematics and the given context revises strategy when appropriate and justifies the selection and revision using precise mathematical terminology.

## RECOGNIZE PERSPECTIVES

*How well does the student recognize the impact of his/her mathematical analyses on themselves and others?*

- **MATH11-12.PERS1.ARGUE.** Presents a viable conjecture or conclusion based on the mathematical context and justifies the position by detailed analysis and evaluation of the mathematical data and revises conjectures based on analysis and evaluation.
- **MATH11-12.PERS2.VRIFY.** Collaborates and seeks external verification or validation of the appropriateness of their model, tools, procedures, solutions, analyses, conclusions, arguments, or decisions, and makes revisions based on external critique to strengthen outcomes.
- **MATH11-12.PERS3.IMPLC.** Evaluates the implications of the conjecture, conclusion, decision, or argument within the global context and uses the evaluation to revise or amend the conjecture, conclusion, decision, or argument within a global context.
- **MATH11-12.PERS4.PERSP.** Recognizes, articulates, and addresses different perspectives and revises original conclusions, decisions, or opinions when appropriate, incorporating specific elements of these perspectives and using precise mathematical language.
- **MATH11-12.PERS5.POSTN.** Strengthens the conjectures, conclusions, or procedures through additional mathematical analyses or research and engages in mathematical discourse to interpret or evaluate and amend the conclusions, arguments, and decisions.

## COMMUNICATE IDEAS

*How clearly and accurately does the student communicate and defend his/her mathematical thinking, approaches, representations, solution, and decisions?*

- **MATH11-12.COMM1.COMM.** Explains and justifies complex mathematical reasoning, concepts, procedures, and relationships using precise mathematical language in an organized and sequenced way, referencing a variety of mathematical models for clarity when appropriate.
- **MATH11-12.COMM2.DEFNS.** Defends multiple conjectures, conclusions, decisions, or arguments with relevant and accurate concepts, procedures, or data from one or more related models using precise mathematical language.
- **MATH11-12.COMM3.SYMBL.** Decontextualizes a mathematical idea in multiple ways by correctly using precise mathematical terms, symbols, and conventions, and contextualizes by evaluation of the process using precise mathematical terminology and symbols.
- **MATH11-12.COMM4.GRAMM.** Engages in clear oral and written mathematical discourse using precise mathematical terminology and language, as well as correct grammar, usage, and mechanics, so that the communication of mathematical meaning is elevated and enhanced.
- **MATH11-12.COMM5.MEDIA.** Selects appropriate media and uses them effectively to communicate mathematical ideas, evaluates and refines media choices and mathematical ideas.

## TAKE ACTION

*How well does the student advocate for, engage in, and reflect on plausible and responsible actions that are supported by his/her mathematics?*

- **MATH11-12.ACT1.ADVCT.** Extends elements of a course of action beyond the scope of the task's audience to a new audience, or beyond the scope of the task.
- **MATH11-12.ACT2.ACTN.** Develops and implements a viable, manageable, and responsible plan of action supported by the mathematics that is consistent with the argument, conclusion, or decision.
- **MATH11-12.ACT3.IMPRT.** Articulates the importance of the plan(s) of action within the context of the global community and analyzes and evaluates the limitations and potential improvements, supported by the data or conclusions.