Grade 9 (AAS): Geometry with Data Analysis

Number and Quantity

Together, irrational numbers and rational numbers complete the real number system, representing all points on the number line, while there exist numbers beyond the real numbers called complex numbers.

1 Solve real world problems involving addition and/or subtraction of rational numbers (whole numbers of decimals) using models when needed. M.G.AAS.9.1

Quantitative reasoning includes and mathematical modeling requires attention to units of measurement.

2 Given a real-world scenario, identify the appropriate unit to obtain the most accurate measurement. (Ex: When baking a cake, should you measure 1 cup of sugar with a teaspoon or a measuring cup?) M.G.AAS.9.2

Algebra and Functions

The structure of an equation or inequality (including, but not limited to, one-variable linear and quadratic equations, inequalities, and systems of linear equations in two variables) can be purposefully analyzed (with and without technology) to determine an efficient strategy to find a solution, if one exists, and then to justify the solution.

3 Solve one-step equations or inequalities. M.G.AAS.9.4

4 Graphs can be used to obtain exact or approximate solutions of equations, inequalities, and systems of equations and inequalities—including systems of linear equations in two variables and systems of linear and quadratic equations (given or obtained by using technology). M.G.AAS.9.5

5 Graphs can be used to obtain exact or approximate solutions of equations, inequalities, and systems of equations and inequalities—including systems of linear equations in two variables and systems of linear and quadratic equations (given or obtained by using technology). M.G.AAS.9.6

Data Analysis, Statistics, and Probability

Mathematical and statistical reasoning about data can be used to evaluate conclusions and assess risks.

6 After collecting data, or with given data, construct a simple graph (line, pie, bar, picture, etc.) or table and interpret the data in terms of range and mode. M.G.AAS.9.9

Distributions of quantitative data (continuous or discrete) in one variable should be described in the context of the data with respect to what is typical (the shape, with appropriate measures of center and variability, including standard deviation) and what is not (outliers), and these characteristics can be used to compare two or more subgroups with respect to a variable.

7 Interpret general trends on a graph. (Limited to increase and decrease) M.G.AAS.9.11

Scatter plots, including plots over time, can reveal patterns, trends, clusters, and gaps that are useful in analyzing the association between two contextual variables.

Analyzing the association between two quantitative variables should involve statistical procedures, such as examining (with technology) the sum of squared deviations in fitting a linear model, analyzing residuals for patterns, generating a least-squares regression line and finding a correlation coefficient, and differentiating between correlation and causation.

8 When given a real-world scenario, choose the independent or dependent variable. Ex.: If I buy 5 books that cost $8.00 each, the total cost is $40. Which variable is independent? M.G.AAS.9.15