Eighth Grade Second Semester Math Curriculum Guide

Third Nine Weeks

Module 5 & 6

Examples of Functions from Geometry/Linear Functions

8.F.A.1 Understand that a *function* is a rule that assigns to each input exactly one output. The graph of a *function* is the set of ordered pairs consisting of an input and the corresponding output
8.F.A.2 Compare properties (e.g., y-intercept/initial value, slope/rate of change) of two *functions* each represented in a different way (e.g., algebraically, graphically, numerically in tables, or by verbal descriptions)
8.F.A.3 Identify the unique characteristics of *functions* (e.g., linear, quadratic, and exponential) by comparing their graphs, equations, and input/output tables
8.F.B.4 Construct a *function* to model a linear relationship between two quantities
8.F.B.5 Describe the functional relationship between two quantities by analyzing a graph (e.g., where the *function* is increasing or decreasing, linear or nonlinear)

8.SP.A.1 Construct and interpret scatter plots for *bivariate* measurement data to investigate patterns of association between two quantities
8.SP.A.2 Know that straight lines are widely used to model relationships between two quantitative variables
For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line
8.SP.A.3 Use the equation of a linear model to solve problems in the context of *bivariate* measurement data, interpreting the slope and intercepts
8.SP.4 Understand that patterns of association can also be seen in *bivariate* categorical data by displaying frequencies and relative frequencies in a two-way table
8.G.C.9 Develop and know the formulas for the volumes and surface areas of cones, cylinders, and spheres and use them to solve real- world and mathematical problems

Fourth Nine Weeks

Module 7

Introduction to Irrational Numbers Using Geometry

8.NS.A.1 Know that numbers that are not rational are called irrational:

- Understand that every number has a decimal expansion

8.NS.A.2 Use rational approximations of *irrational numbers* to compare the size of *irrational numbers*, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2)

8.EE.A.2 Use square root and cube root symbols to represent solutions to equations:

- Use square root symbols to represent solutions to equations of the form $x^2 = p$, where p is a positive rational number
  Evaluate square roots of small perfect squares.
- Use cube root symbols to represent solutions to equations of the form $x^3 = p$, where p is a rational number.

Evaluate square roots and cube roots of small perfect cubes

8.G.B.6 Model or explain an informal proof of the Pythagorean Theorem and its converse

8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions

8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system

8.G.C.9 Develop and know the formulas for the volumes and surface areas of cones, cylinders, and spheres and use them to solve real- world and mathematical problems