

Appendix 1

Students will use strategies to strengthen their knowledge by working with and understanding functions in more complex methods. This unit connects algebraic equations to their geometric models. Students identify coordinates, locate points, and explore graphing linear relations using intercepts and tables. They learn to recognize extend, and write equations from patterns. They use their skills in algebraic manipulation to rewrite linear equations in various forms to describe relationships in real-world data. Students will also graph and translate exponential functions in this unit then relate it to a growth problem. The concept in this unit allows students to analyze how a quantity changes over time. F.IF.1 allows students to understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. With standard F.IF.2, students use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. Students will learn that for a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship (F.IF.4). Standard F.IF.5 relates the domain of a function while F.IF.6 calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Students will also graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases in standard F.IF.7. They will compare properties of two functions each represented in a different way (F.IF.9 algebraically, graphically, numerically in tables, or by verbal descriptions). Standard F.LE.1 distinguishes between situations that can be modeled with linear functions and with exponential functions. In this unit with standard F.LE.2, students construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). Lastly in F.LE.3 they observe using graphs and tables, that a quantity increasing exponentially eventually exceeds a quantity increasing linearly while in F.LE.5 the interpretation of the parameters in a linear or exponential function in terms of a context increasing linearly.