Unit 1 – Linear Functions	RED	YELLOW	GREEN
Review of Function Concepts • Find the domain and range of a relation. • Identify if a relation is a function or not. • Work with function notation & evaluating & solving of functions. • Work with function notation in application based problems. **Working with Linear Functions** • Use an algebraic & graphic perspective to review fundamental skills (slope, intercepts, convert, evaluate & solve) related to slope-intercept & point-slope forms of linear equations • Introduce standard form & intercept form of linear equations & relate back foundational skills • Generate the graphs of these linear functions on technology (TI-84 & DESMOS) • Graph and analyze linear functions with domain/range limitations • Extend linear functions to piecewise functions and the absolute value function • Write equations to model real world scenarios using slope-intercept form of linear functions • Write equations to model real world scenarios using standard form of linear functions • Apply function basics like domain and range to real world scenarios **Working with Linear Systems** • Write pairs of equations to model real world scenarios involving two unknowns. • Reviewing algebraic methods for solving simultaneous linear equations (elimination & substitution) • Investigate the numbers of solutions that linear systems can have • Use multiple representations in solving linear systems			

Unit 2 – Functions			
Basics of Functions & Domains and Ranges (Lesson 2.1) • Be able to evaluate a function (i.e f(3)) when given multiple representations of the functions: {equation for f(x), a graph for f(x) or a data table/list/mapping for f(x)} • Solve a function for a given value of f(x) (i.e solve f(x) = 3) when given multiple representations of the functions: {equation for f(x), a graph for f(x) or a data table/list/mapping for f(x)} • State domain and range when given multiple representations of the functions: {equation for f(x), a graph for f(x) or a data table/list/mapping for f(x)}			

- be able to change representations ➔ (i) from graph or data table, write eqn; (ii) from eqn, make graph or data table
- be able to understand the connections amongst the representations (graph, data table, equation/algebraic)

Features of Functions & New Parent Functions (Lesson 2.2 & Lesson 2.4)

- Be able to identify key features of any function when presented with a graph of the function. These analysis features would include D/R, asymptotes, optimal points, continuities, symmetry, intervals of increase/decrease
- be able to graph and analyze the key features of the following new parent functions: {$y = |x|$, $y = 1/x$, $y = \sqrt{x}$}.

Inverses of Functions (Lesson 2.3)

- Be able to write the inverse of functions when presented with graphic and numeric representations of a functions (data tables, lists of ordered pairs)
- Be able to state the domains and ranges of inverse functions when presented with graphic and numeric representations of a functions (data tables, lists of ordered pairs)
- Be able to solve and evaluate (i.e. solve $f^{-1}(x) = 3$) and evaluate ($f^{-1}(3)$) with inverses presented as graphic and numeric representations of a functions (data tables, lists of ordered pairs)
- Be able to work with inverses of linear and quadratic functions when presented with equations and graphs for these functions
- Be able to apply the concept of inverse functions to contextual problems (i.e in physics ➔ the relationship between height vs time and its inverse relationship (of time vs height)

Transformations of Functions (Lesson 2.5)

- Be able to perform TRANSLATIONS of the graph of a variety of functions including: {a piecewise defined function & parent functions of $y = x^2$, $y = |x|$, $y = 1/x$, $y = \sqrt{x}$}
- Be able to perform VERTICAL STRETCHES/COMPRESSIONS of the graph of a variety of functions including: {a piecewise defined function & parent functions of $y = x^2$, $y = |x|$, $y = 1/x$, $y = \sqrt{x}$}
- Be able to state applied transformations of a parent function when presented with an equation or a graph
- Be able to perform transformations upon key points of a function
- Be able to identify the locations of key features of functions after the application of transformations (i.e. new location of vertex, asymptotes, y-intercepts, x-intercepts)

Unit 2 & 3 – Quadratic Functions

Quadratic Basics:

- Be able to evaluate (f(2) = ?) with all three forms of QF
- Be able to analyze all three forms of QF for key features (vertex, roots, y-intercepts, points), from both its equation or its graph

• Be able to graph/sketch QF from equations presented in any of the three forms • Be able to apply the features of QF in contextual problems **Quadratic Algebra:** • Be able to solve QE in the form of f(x) = 0 by factorization (when a = 1 and when a > 1) and understand the graphic significance of solutions. • Be able to solve QE in the form of f(x) = 0 using the square root method and the completing the square method, both when a = 1 and a > 1. • Be able to solve QE in the form of f(x) = 0 using the Quadratic Formula. • Be able to solve QE using ANY method when presented with equations in the form of systems (i.e solving f(x) = g(x) where either or both f & g are quadratic functions) • Be able to use the discriminant to predict the number of solutions to the quadratic equation f(x) = 0 • be able to create and solve quadratic equations from word problems • be able to apply knowledge of quadratic functions (features & algebra) to contextual problems when provided with (i) the equation, (ii) the graph, (iii) a data set			
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