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8th Grade Algebra 2 Pacing Guide 18-19

4.0 TARGET	3.0 TARGET	2.0 TARGET	Pacing & Unit Dates
Unit #1: Quadratic Relations and Equations			
Does Not Extend	SHS.LT.Q.1: Apply transformations to multiple representations of functions.	Identify transformations of different functions.	**18 DAYS** **Unit Dates: August 15 - September 14** **Benchmark Dates: September 7 - 14** **Trimester #1**
Does Not Extend	SHS.LT.Q.2: Describe, in words and/or function notation, the transformation from one function to another in terms of vertical shifts/shrinks/stretches and horizontal shifts/shrinks/stretches.	Partially describe the transformation from one function to another in terms of vertical shifts/shrinks/stretches and horizontal shifts/shrinks/stretches.	
Identify and apply interval notation to describe when a polynomial function is increasing, decreasing, positive, and negative.	SHS.LT.Q.3: Determine when a polynomial function is increasing, decreasing, positive, and negative using interval notation.	Identify the interval when a polynomial function is increasing, decreasing, positive, and negative.	
Use knowledge of the quadratic formula to identify complex solutions when simplifying an algebraic expression.	SHS.LT.Q.4: Solve quadratic equations and inequalities using zero–product property, quadratic formula, and square root method.	Identify and use various methods to solve quadratic equations and inequalities.	
Does Not Extend	SHS.LT.Q.5: Graph quadratic functions, identifying zeros when suitable factorizations are available, and showing end behavior.	Graph vertex, zeroes, or end behavior of quadratic functions.	
Does Not Extend	SHS.LT.Q.6: Apply graphical, tabular, and algebraic relationships between a function (linear, quadratic, square root and piecewise) and its inverse.	Understand the graphical, tabular, or algebraic relationship between a linear function and its inverse.	
Does Not Extend	SHS.LT.Q.P.7: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
Does Not Extend	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	
Unit #2: Polynomial Functions and Equations			
Does Not Extend	SHS.LT.PFE.1: Build polynomial functions from linear and quadratic functions.	Write a polynomial, linear, or quadratic fucntion.	**21 DAYS** **Unit Dates: September 17 - October 17** **Benchmark Dates: October 10 - 17** **Trimester #1**
Does Not Extend	SHS.LT.PFE.2: Factor polynomials using various factor techniques and division.	Factor polynomials using one technique.	
Solve abstract polynomial equations and inequalities of unknown lengths of geometric figures.	SHS.LT.PFE.3: Solve polynomial equations and inequalities using zero-product property, quadratic formula, and square root method.	Solve basic polynomial equations and inequalities.	
Compare two polynomial functions in different forms and determine key differences.	SHS.LT.PFE.4: Interpret key features of polynomial functions including zeros and end behavior.	Interpret key features when given possible answers.	
Does Not Extend	SHS.LT.PFE.5: Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	Graph polynomial functions when given zeros and key features.	
Write equations of polynomial functions given imaginary and rational roots.	SHS.LT.PFE.6: Write equations of polynomial functions.	Write equations of polynomial functions given a graph with real zeros.	
Solve real world application problem using knowledge of dividing polynomials.	SHS.LT.PFE.7: Divide polynomials.	Divide basic polynomials.	
Does Not Extend	SHS.LT.PFE.8: Use technology to analyze key features of polynomial functions.	Use technology to find key features of polynomial functions.	
Does Not Extend	SHS.LT.PFE.9: Perform the operations of addition, subtraction, and multiplication on complex numbers.	Add, subtract, or multiply basic complex numbers.	
Does Not Extend	SHS.LT.PFE.10: Use technology to generate the appropriate regression model and to make predictions.	Use technology to generate regression equations.	
Does Not Extend	SHS.LT.PFE.P.11: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
Does Not Extend	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	
Unit #3: Rational Functions and Equations			
Perform operations on rational expression when solving measures of geometric figures.	SHS.LT.RFE.1: Add, subtract, multiply, and divide rational expressions.	Add, subtract, multiply, or divide rational expressions.	

Create and solve rational equations when given a real world task.	SHS.LT.RFE.2: Create rational equations in one variable, and use them to solve problems.	Create rational expressions in one variable.	**16 DAYS** **Unit Dates:** **ctober 18 - November 12** **Benchmark Dates:** **November 5 - November 12** **Trimester #2**
Does Not Extend	SHS.LT.RFE.3: Identify key features of rational functions, including zeros, asymptotes, point(s) of discontinuity, domain.	Identify basic key features of rational functions.	
Does Not Extend	SHS.LT.RFE.4: Graph transformations of the function f(x) = 1/x using vertical and horizontal stretches and shifts.	Match a given graph to a rational function equation.	
Does Not Extend	SHS.LT.RFE.5: Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.	Graph rational functions in quotient form.	
Does Not Extend	SHS.LT.RFE.6: Rewrite rational expressions in different forms.	Rewrite rational expressions in one form.	
Solve and analyze an application problem involving rational equations.	SHS.LT.RFE.7: Solve rational equations (and exposure to inequalities) and identify extraneous solutions.	Solve basic rational equations.	
Does Not Extend	SHS.LT.RFE.P.8: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
Does Not Extend	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	
Unit #4: Radical Functions and Equations			
Apply knowledge of rewriting expressions involving radical and rational exponents in a complex problem.	SHS.LT.RDFE.1: Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Rewrite basic expressions involving radicals or rational exponents.	**14 DAYS** **Unit Dates:** **ovember 13 - December 7** **Benchmark Dates:** **November 30 - December 7** **Trimester #2**
Does Not Extend	SHS.LT.RDFE.2: Identify key features of square root and cube root functions, including points of inflection, endpoints, domain, and range.	Identify some key features of square root and cube root functions.	
Does Not Extend	SHS.LT.RDFE.3: Graph square root and cube root functions, showing key features (points of inflection, endpoints, domain, and range.)	Graph simple square root and cube root functions.	
Write an equation of a square root and cube root function given a geometric figure.	SHS.LT.RDFE.4: Write equations of square root and cube root functions.	Write equations of square root or cube root functions.	
Prove equivalent square root equations abstractly.	SHS.LT.RDFE.5: Solve square root and cube root equations and inequalities and identify extraneous solutions.	Solve square root and cube root functions.	
Does Not Extend	SHS.LT.RDFE.6: Write equations for the inverse of square root and cube root functions.	Develop steps in writing equations for the inverse of square root and cube root functions.	
Does Not Extend	SHS.LT.RDFE.P.7: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
Does Not Extend	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	
Unit #5: Exponential Functions and Equations			
Create an exponential equation and use it to solve problems comparing interest as a function of time.	SHS.LT.EFE.1: Create exponential equations and inequalities and use them to solve problems. (including compound and continuous interest formulas).	Solve exponential equations when given.	**9 DAYS** **Unit Dates:** **December 10 - January 9** **Benchmark Dates:** **December 19 - January 9** **Trimester #2**
Use applied interdisciplinary knowledge regarding half life to interpret expressions for exponential functions.	SHS.LT.EFE.2: Use properties of exponents to interpret expressions for exponential functions.	Use some properties of exponents to interpret expressions.	
Does Not Extend	SHS.LT.EFE.3: Identify key features of graphs and tables of exponential, including zeros, asymptotes, domain, and range.	Identify some key features of graphs of exponential functions.	
Does Not Extend	SHS.LT.EFE.4: Graph exponential functions, including key features (zeros, end behavior, asymptotes).	Graph exponential including some key features.	
Evaluate, compare, and contrast exponential functions.	SHS.LT.EFE.5: Evaluate exponential expressions.	Evaluate basic exponential expressions.	
Solve complex exponential equations.	SHS.LT.EFE.6: Solve exponential equations.	Solve exponential equations without extraneous solutions.	
Does Not Extend	SHS.LT.EFE.P.7: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
Does Not Extend	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	
Unit #6: Exponential and Logarithmic Functions and Equations			
Create an exponential equation and use it to solve problems comparing interest as a function of time.	SHS.LT.ELFE.1: Create exponential equations and inequalities and use them to solve problems (including compound and continuous interest formulas).	Solve exponential equations when given.	

Does Not Extend	SHS.LT.ELFE.2: Identify key features of graphs and tables of exponential and logarithmic functions, including zeros, asymptotes, domain, and range.	Identify some key features of graphs of exponential and logarithmic functions.	**11 DAYS** **Unit Dates:** **January 10 - January 25** **Benchmark Dates:** **January 18 - January 25** **Trimester #2**
Does Not Extend	SHS.LT.ELFE.3: Graph exponential and logarithmic functions, including key features (zeros, end behavior, asymptotes).	Graph exponential and logarithmic functions including some key features.	
Evaluate, compare, and contrast exponential and logarithmic functions.	SHS.LT.ELFE.4: Evaluate exponential and logarithmic expressions.	Evaluate basic exponential and logarithmic expressions.	
Does Not Extend	SHS.LT.ELFE.5: Write equations for the inverses of exponential and logarithmic functions.	Consistently set up equations to find inverses.	
Apply multiple properties of logarithms to simplify complex expressions.	SHS.LT.ELFE.6: Apply properties of logarithms.	Choose expressions that represent properties of logarithms.	
Does Not Extend	SHS.LT.ELFE.7: Solve exponential and logarithmic equations.	Solve exponential and logarithmic equations without extraneous solutions.	
Does Not Extend	SHS.LT.ELFE.P.8: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
Does Not Extend	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	
Unit #7: Sequences and Series			
Does Not Extend	SHS.LT.SS.1: Recognize that sequences are functions with integer domains.	Recognize that sequences are functions in basic arithmetic functions.	**12 DAYS** **Unit Dates:** **January 28 - February 12** **Benchmark Dates:** **February 5 - February 12** **Trimester #3**
Find explicit and recursive rules when given a complex real-world situation.	SHS.LT.SS.2: Find explicit and recursive rules, and find terms for arithmetic sequences.	Find explicit or recursive rules but not in a real-world context.	
Does Not Extend	SHS.LT.SS.3: Find explicit and recursive rules, and find terms for geometric sequences.	Find explicit or recursive rules but not in a real-world context.	
Find sums of complex arithmetic series when given a real-world situation.	SHS.LT.SS.4: Find sums of arithmetic series.	Find sums of simple arithmetic series.	
Does Not Extend	SHS.LT.SS.5: Find sums of geometric series.	Find sums of simple geometric series.	
Does Not Extend	SHS.LT.SS.6: Determine if an infinite series converges or diverges, and evaluate.	Determine if an infinite series converges or diverges.	
Does Not Extend	SHS.LT.SS.P.7: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
Does Not Extend	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	
Unit #8: Statistics and the Normal Distribution			
Does Not Extend	SHS.LT.SND.1: Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	Recognize the differences among sample surveys, experiments, and observational studies.	**12 DAYS** **Unit Dates:** **February 13 - March 11** **Benchmark Dates:** **March 5 - March 11** **Trimester #3**
Does Not Extend	SHS.LT.SND.2: Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	Understand statistics as a process for making inferences about some population parameters (less than, more than, OR between).	
Does Not Extend	SHS.LT.SND.3: Decide if a specified model is consistent with results from a given data-generating process.	Produce a conclusion from a data-generating process.	
Use confidence interval to work backwards to determine the sample size	SHS.LT.SND.4: Use data from a sample survey to estimate a population mean or proportion; develop an understanding of margin of error through the use of simulation models for random sampling.	Use data from a sample survey to estimate a population mean or proportion.	
Use the mean and standard deviation of data set to solve for the probability of a population	SHS.LT.SND.5: Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages.	Choose the correct mean and standard deviation of a data set to fit a normal distribution.	
Does Not Extend	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	
Unit #9: Unit Circle and Trigonometric Functions			
Does Not Extend	SHS.LT.TF.1: Sketch angles and coterminal angles in standard position showing direction.	Sketch basic angles and coterminal angles in standard position showing direction.	**10 DAYS** **Unit Test:** **March 12 - April 9** **Benchmark Dates:** **April 3 - April 9**
Does Not Extend	SHS.LT.TF.2: Locate ordered pairs on the unit circle using radian and degree measure for angles with reference angles of Pi/6, Pi/4, Pi/3, 30°, 45°, 60° and quadrantal angles.	Locate ordered pairs on the unit circle using radian or degree measure for angles with reference angles of Pi/6,Pi/4,Pi/3, 30°, 45°, 60° and quadrantal angles.	
Does Not Extend	SHS.LT.TF.3: Evaluate trigonometric functions for angles with reference angles of Pi/6, Pi/4, Pi/3, 30 degrees, 45 degrees, 60 degrees, and quadrantal angles.	Choose the correct features for a given trigonometric function.	

Does Not Extend	SHS.LT.TF.P4: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	**Trimester #3**
Does Not Extend	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	
Unit #10: Graphs of Trigonometric Functions			
Evaluate trigonometric functions of any angle given another trigonometric value of that same angle in a real-world context.	SHS.LT.GTF.1: Evaluate trigonometric functions of any angle given another trigonometric value of that same angle.	Evaluate basic trigonmetric functions of any angle given another trigonometric value of that same angle.	**13 DAYS** **Unit Test:** **April 9 - April 30** **Benchmark Dates:** **April 23 - April 30** **Trimester #3**
Does Not Extend	SHS.LT.GTF.2: Identify key features of graphs of sine and cosine functions, including amplitude, period, phase shift, vertical shift, domain, and range.	Identify key features of graphs of sine or cosine functions, including amplitude, period, phase shift, vertical shift, domain, or range.	
Does Not Extend	SHS.LT.GTF.3: Graph sine and cosine functions identifying amplitude, period, phase shift, and vertical shift.	Identify key features of graphs of sine and cosine functions.	
Does Not Extend	SHS.LT.GTF.4: Write equations of sine and cosine functions.	Choose the correct equation of sine and cosine functions.	
Write an equation of a trig function that represents a complex real-world phenomena including all key features.	SHS.LT.GTF.5: Use sine and cosine functions to model real-world phenomenon.	Use sine or cosine functions to model real-world phenomenon.	
Does Not Extend	SHS.LT.GTF.P.6: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
Does Not Extend	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	
Unit #11: Probability Concepts and Independence			
Interpret and solve the probability of a complex geometic figure.	SHS.LT.P.1: Create, analyze, and interpret diagrams, and use them to determine probabilities, including conditional probabilities.	Create, analyze, or interpret diagrams, and use them to determine probabilities.	**13 DAYS** **Unit Dates:** **May 1 - May 31** **Benchmark Dates:** **May 17 - May 31** **Trimester #3**
Calculate complex probabilities.	SHS.LT.P.2: Apply permutations and combinations to calculate probabilities.	Apply simple permutations or combinations to calculate probabilities.	
Does Not Extend	SHS.LT.P.3: Use probability to determine and justify if two events are independent.	Use probability to determine if two events are independent.	
Does Not Extend	SHS.LT.P.P.4: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
Does Not Extend	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	