

8th Grade: Algebra 2 Pacing Guide 2019-2020

4.0 Target	3.0 Target	2.0 Target	CCSS	Pacing & Unit Dates
Unit #1: Quadratic Relations and Equations				
N/A	SHS.LT.Q.1: Apply transformations to multiple representations of functions.	Identify transformations of different functions.	A-CED.1	<p style="text-align: center;">18 DAYS</p> <p style="text-align: center;">Unit Dates: August 15 - September 16</p> <p style="text-align: center;">Benchmark Dates: September 9 - 16</p> <p style="text-align: center;">Trimester #1</p>
N/A	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.	F-BF.3	
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.	A-REI.4b, A-SSE.1, A-SSE.3.a	
N/A	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.	F-IF.7	
N/A	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.	F-BF.4, F-BF.4a, F-BF.4c	
N/A	SHS.LT.Q.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.	N/A	
N/A	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	N/A	
Unit #2: Polynomial Functions and Equations				
N/A	SHS.LT.PFE.1: Build polynomial functions from linear and quadratic functions.	Write a polynomial, linear, or quadratic function.		<p style="text-align: center;">21 DAYS</p> <p style="text-align: center;">Unit Dates: September 17 - October 23</p> <p style="text-align: center;">Benchmark Dates: October 16 - 23</p> <p style="text-align: center;">Trimester #1</p>
N/A	SHS.LT.PFE.2: Factor polynomials using various factor techniques and division.	Factor polynomials using one technique.	A-SSE.2	
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.	A-REI.11	
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.	F-IF.4	
N/A	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.	A-APR.3	
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.	N/A	
Solve real world application problem using knowledge of dividing polynomials.	SHS.LT.PFE.7: Divide polynomials.	Divide basic polynomials.	A-APR.2	
N/A	SHS.LT.PFE.8: Use technology to analyze key features of polynomial functions.	Use technology to find key features of polynomial functions.	F-IF.4, F-IF.7	
N/A	SHS.LT.PFE.9: Perform the operations of addition, subtraction, and multiplication on complex numbers.	Add, subtract, or multiply basic complex numbers.	N-CN.2	
Use technology to generate the appropriate regression model for a complex situation and to make predictions.	SHS.LT.PFE.10: Use technology to generate the appropriate regression model and to make predictions.	Use technology to generate regression equations.	F-IF.4, F-IF.7	

N/A	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.	N/A
N/A	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	N/A

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.	A-APR.7	<p>16 DAYS</p> <p>Unit Dates: October 24 - November 14</p> <p>Benchmark Dates: November 7 - November 14</p> <p>Trimester #2</p>
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.	A-CED.1	
N/A	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.	F-IF.4, F-IF.7	
N/A	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.	F-BF.3	
N/A	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.	F-IF.7.d	
N/A	SHS.LT.RFE.6: Rewrite rational functions in different forms.	Rewrite rational functions in one form.	A-SSE.2	
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.	A-REI.2	
N/A	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.	N/A	
N/A	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	N/A	

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.	N-RN.1, N-RN.2	<p>14 DAYS</p> <p>Unit Dates: November 15 - December 13</p> <p>Benchmark Dates: November 7 - December 13</p> <p>Trimester #2</p>
N/A	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.	F-IF.4	
N/A	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.	F-IF.4	
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.	(A-EE.2)	
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.	A-REI.2	
N/A	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.	F-BF.4.a	
N/A	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.	N/A	
N/A	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	N/A	

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.	A-CED.1
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.	F-IF.8.b, F-IF.9

N/A	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.	F-IF.4	9 DAYS Unit Dates: December 14 - January 10 Benchmark Dates: January 6 - January 10 Trimester #2
N/A	SHS.LT.EFE.4: Graph exponential functions, including key features (zeros, end behavior, asymptotes).	Graph exponential including some key features.	F-IF.4, F-IF.7.e	
Evaluate, compare, and contrast exponential functions.	SHS.LT.EFE.5: Evaluate exponential expressions.	Evaluate basic exponential expressions.	F-LE.4	
Solve complex exponential equations.	SHS.LT.EFE.6: Solve exponential equations.	Solve exponential equations without extraneous solutions.	A-REI.11	
N/A	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.	N/A	
N/A	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	N/A	

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.	A-CED.1	11 DAYS Unit Dates: January 11 - January 29 Benchmark Dates: January 22 - January 29 Trimester #2
N/A	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.	F-IF.4	
N/A	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.	F-IF.4, F-IF.7.e	
Evaluate, compare, and contrast exponential and logarithmic functions.	SHS.LT.ELFE.4: Evaluate exponential and logarithmic expressions.	Evaluate basic exponential and logarithmic expressions.	F-LE.4	
N/A	SHS.LT.ELFE.5: Write equations for the inverses of exponential and logarithmic functions.	Consistently set up equations to find inverses.	F.BF.4, A.REI.11	
Apply multiple properties of logarithms to simplify complex expressions.	SHS.LT.ELFE.6: Apply properties of logarithms.	Choose expressions that represent properties of logarithms.	F-IF.8.b, F-IF.9	
N/A	SHS.LT.ELFE.7: Solve exponential and logarithmic equations.	Solve exponential and logarithmic equations without extraneous solutions.	A-REI.11	
N/A	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.	N/A	
N/A	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	N/A	

Unit #7: Sequences and Series

N/A	SHS.LT.SS.1: Recognize that sequences are functions whose domain is a subject of integers	Recognize that sequences are functions in basic arithmetic functions.	F-IF.3	12 DAYS Unit Dates: January 30 - February 14 Benchmark Dates: February 7 - February 14 Trimester #2
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.		
N/A	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.		
N/A	SHS.LT.SS.5: Find sums of geometric series.	Find sums of simple geometric series.		
N/A	SHS.LT.SS.6: Determine if an infinite series converges or diverges, and evaluate.	Determine if an infinite series converges or diverges.		
N/A	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.	N/A	
N/A	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	N/A	

Unit #8: Statistics and the Normal Distribution				
N/A	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.	S-IC.3	12 DAYS Unit Dates: February 15 - March 6 Benchmark Dates: March 3 - March 6 Trimester #3
N/A	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).	S-IC.1	
N/A	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.	S-IC.2	
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.	S-IC.4	
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.	S-IC.5	
N/A	SHS.LT.SS.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.	N/A	
N/A	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	N/A	
Unit #9: Unit Circle and Trigonometric Functions				
N/A	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.	F-TF.1	10 DAYS Unit Test: March 6 - April 1 Benchmark Dates: March 19 - April 1 Trimester #3
N/A	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.	F-TF.2	
N/A	SHS.LT.TF.3: Evaluate trigonometric functions for angles with reference angles of $\pi/6$, $\pi/4$, $\pi/3$, 30°, 45°, 60° and quadrantal angles.	Choose the correct features for a given trigonometric function.	F-TF.2	
N/A	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.	N/A	
N/A	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	N/A	
Unit #10: Graphs of Trigonometric Functions				
N/A	SHS.LT.GTF.1: 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.	F-IF.4	13 DAYS Unit Test: April 2 - April 28 Benchmark Dates: April 21 - April 28 Trimester #3
N/A	SHS.LT.GTF.2: Graph sine and cosine functions identifying amplitude, period, phase shift, and vertical shift.	Identify key features of graphs of sine and cosine functions.	F-IF.7.e	
N/A	SHS.LT.GTF.3: Write equations of sine and cosine functions.	Choose the correct equation of sine and cosine functions.	F-TF.5	
Write an equation of a trig function that represents a complex real-world phenomena including all key features.	SHS.LT.GTF.4: Use sine and cosine functions to model real-world phenomenon.	Use sine or cosine functions to model real-world phenomenon.	F-TF.5	
N/A	SHS.LT.GTF.P.5: 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.	N/A	
N/A	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	N/A	

Unit #11: Probability Concepts and Independence

Interpret and solve the probability of a complex geometric 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.	S-CP.1, S-CP.3, S-CP.4, S-CP.5, S-CP.6	<p>13 DAYS</p> <p>Unit Dates: April 29 - May 29</p> <p>Benchmark Dates: May 14 - May 22</p> <p>Trimester #3</p>
Calculate complex probabilities.	SHS.LT.P.2: Apply permutations and combinations to calculate probabilities.	Apply simple permutations or combinations to calculate probabilities.	S-CP.8	
N/A	SHS.LT.P.3: Use probability to determine and justify if two events are independent.	Use probability to determine if two events are independent.	S-CP.2	
N/A	SHS.LT.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.	N/A	
N/A	SHS.LT.0: Demonstrate ability to retain content knowledge over time.	Demonstrate ability to partially retain content knowledge over time.	N/A	