		Algebra 2 **TERM 1 (4.5 Weeks)**			
*	**Ref. Code**	**STANDARDS**	**MP**	**Comments**	**Date Taught**
		UNIT 1: EXPONENTS			
	ref. Code	*Standard*	*mp*		
*	**N.RN.1**	Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. *For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5^{(1/3)3}$ to hold, so $(5^{1/3})^3$ must equal 5.*	7 EOY	i) Calculator is item specific.	
*	**N.RN.2**	Rewrite expressions involving radicals and rational exponents using the properties of exponents.	3,8 PBA 7 EOY	i) Calculator allowed. ii) Could be involved in a multi-step problem requiring extended chains of reasoning on PBA (HS.C.CCR).	
*	**A.SSE.3c**	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. c. Use the properties of exponents to transform expressions for exponential functions. *For example, the expression 1.15^t can be rewritten as $(1.15^{1/2})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*	4,2 PBA 1,2,4,7 EOY	i)Calculator neutral on EOY.	
		UNIT 2: STRUCTURES			
*	**A.SSE.4**	Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems.	6 PBA 1,7 EOY	i) On both assessments, calculator allowed. ii) On EOY, this could be tested without context as part of A.Int.1.	
*	**A.SSE.2**	Use the structure of an expression to identify ways to rewrite it. i. *For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.* ii. Rewrite in a case where two or more rewriting steps are required.	7 PBA, EOY	i)Case ii is on the EOY with MP 1 as well. i) On EOY, this could be tested without context as part of A.Int.1.	
*	**A.APR.6**	Rewrite simple rational expressions in different forms; write a(x)/b(x) in the form q(x) + r(x)/b(x), where a(x), b (x), q(x), and r(x) are polynomials with the degree of r(x) less than the degree of b(x), using inspection, long division, or for the more complicated examples, a computer algebra system.	3,6 PBA 1 EOY	i)On EOY, examples will be simple enough to allow inspection or long division. ii) On EOY, simple rational expressions are limited to those whose numerators and denominators have degree at most 2. iii)On EOY, this could be tested without context as part of A.Int.1.	
*	**A.APR.4**	Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.	3,6 PBA	i) On EOY, this could be tested without context as part of A.Int.1.	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 1 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
		UNIT 3: FUNCTIONS			
	F.BF.1b	Write a function that describes a relationship between two quantities. b. Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*	EOY	i) Focus on linear at this time. ii) Tasks may or may not have a context. iii) For example, given $f(x)=e^x$ and $g(x)=5$; write an expression for $h(x)=2f(-3x)+g(x)$. iv) Calculator use is neutral.	
*	**F.BF.2**	Write arithmetic and geometric sequences both recursively and with an explicit formula; use them to model situations, and translate between two forms.	EOY	i) Calculator use is item specific.	
*	**F.IF.3**	Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. *For example, the Fibonacci sequence is defined recursively by $F(0) - F(1) = 1$, $f(n+1) = f(n) + f(n - 1)$ for $n \geqslant 1$.*	4,2 PBA		
*	**N.Q.2**	Define appropriate quantities for the purpose of descriptive modeling.	4,2 PBA	i) Review from Algebra 1	
	A.CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*	4,2 PBA		
	F.BF.4a	Find inverse functions. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. For example, $f(x) = 2x3$ or $f(x) = (x + 1)/(x -1)$ for x 1.	4 PBA EOY	i) Calculator allowed. ii) Linear inverses at this time. iii) On EOY, students might need to find inverse while solving contextual problems (F.BF.Int.2).	
	F.LE.5	Interpret the parameters in a linear or exponential function in terms of a context.	2,4 EOY	i) Students will be asked to solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in F.LE.	
	F.IF.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*	1,3,5,6, 8 EOY	i) Look at linear only at this time. ii) On EOY, function types are limited to polynomial, exponential, logarithmic, and trigonometric functions. iii) Calculator use is item specific.	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 1 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
*	**A.REI.6**	Solve systems of linear equations exactly and approximately (e.g., with graphs)focusing on pairs of linear equations in two variables. ★ Solve algebraically a system of three linear equations in three unknowns.	2,4 PBA 1,7 EOY	i) Students will be required to solve systems with two and three variables. ii)The star standard is what is tested on EOY with calculator use being item specific. iii)On the EOY, 80% of systems have a unique solution. 20% of systems have no solution or infinitely many solutions. Coefficients are rational numbers. iv)Tasks on the EOY will not require any specific method to be used (e.g. prompts do not direct the student to use elimination or any other particular method).	
	A.REI.11	Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	1,5, 3 PBA 1,5 EOY	i) Linear only at this time. ii)The "explain" part of standard A.REI.11 is not assessed here. For this aspect of the standard, see Sub-Claim c. iii) Calculator can be used when asked to explain how many positive solutions iv)For HS.C.5.11: might be asked how many positive solutions there are to the equation $e^x = x + 2$ and to explain how they know. Calculator allowed on PBA. v) On EOY, students will be asked to find the solutions of intersection and calculator usage will be item specific.	
	A.REI.7	Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.*	2,4 PBA 1 EOY	i) Focus on linear systems and just circles at this time. ii) On EOY, tasks have think context or no context and calculator use will be item specific.	
	F.IF.7b	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	4,2 PBA 1,5,6 EOY	i) ***GAP from Algebra 1. ii) Focus on Absolute Value at this time. iii)This standard could be involved in solving multi-step contextual word problems on PBA (HS.D.2). iv) On EOY, calculator is item specific.	
	F.IF.4	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. Key features include: intercepts, intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	6,4 EOY	i) ***GAP from Algebra 1. ii) Focus on Absolute Value at this time. iii) Calculator allowed on EOY.	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 1 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
	A.REI.11	Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	1,5, 3 PBA 1,5 EOY	i) Focus on line and absolute value. ii)The "explain" part of standard A.REI.11 is not assessed here. For this aspect of the standard, see Sub-Claim c. iii) Calculator can be used when asked to explain how many positive solutions iv)For HS.C.5.11: might be asked how many positive solutions there are to the equation $e^x = x + 2$ and to explain how they know. Calculator allowed on PBA. v) On EOY, students will be asked to find the solutions of intersection and calculator usage will be item specific.	
	F.IF.7b	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	1,5,6 EOY	i) ***GAP from Algebra 1. ii) Focus on piecewise and step functions at this time. iii)Calculator use item specific.	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 2 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
		UNIT 4 : QUADRATICS			
*	**A.SSE. 3a,b**	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. a. Factor a quadratic expression to reveal the zeros of the function it defines. b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	4,2 PBA 1,2,4,7 EOY	i)**Gap from Algebra 1 Calculator neutral on EOY.	
	F.IF.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*	1,3,5,6, 8 EOY	i) Look at quadratics only at this time. ii)On EOY, function types are limited to polynomial, exponential, logarithmic, and trigonometric functions. iii)Calculator use is item specific.	
	F.BF.3	Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	2,3,4 PBA 3,5,7,8 EOY	i)Focus on quadratics at this time. ii) Express reasoning about transformations of functions (polynomial, exponential, logarithmic, or trigonometric functions) on PBA. Calculator allowed on reasoning. iii) On EOY, experimenting with cases and illustrating an explanation are not assessed here. Calculator item specific on EOY.	
*	**G.GPE.2**	Derive the equation of a parabola given a focus and directrix.	3 PBA	i) Calculator allowed.	
*	**N.CN.1**	Know there is a complex number *i* such that $i^2 = -1$, and every complex number has the form a + bi with a and b real.	7 MYA, EOY		
*	**N.CN.2**	Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	6,7 PBA, EOY	No calculator	
*	**A.APR.2**	Know and apply the Remainder Theorem; For a polynomial p(x) and a number a, the remainder on division by x - a is p(a) = 0 if and only if (x - a) is a factor of p(x).	3,6 PBA, EOY	i)On EOY, calculator not allowed.	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 2 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
*	**A.REI.4**	Solve quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a ± bi for real numbers a and b.	PBA 7,5 EOY	i)**GAP from Algebra 1 ii)Could be involved in a multi-step problem requiring extended chains of reasoning on PBA (HS.C.CCR). iii)4b on EOY where task involve recognizing an equation with complex solutions, e.g., "Which of the following equations has no real solutions?" with one of the options being a quadratic equation with non-real solutions. iv)On EOY, writing solutions in the form a ± bi is not assessed here.	
*	**N.CN.7**	Solve quadratic equations with real coefficients that have complex solutions.	5 PBA, EOY	i) Tasks are limited to equations with non-real solutions.	
	A.CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*	4,2 PBA	i) Focus on just linear and quadratics at this time.	
*	**A.REI.7**	Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.*	2,4 PBA 1 EOY	i) On EOY, tasks have think context or no context and calculator use will be item specific.	
*	**F.IF.8a**	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values and symmetry of the graph, and interpret these in terms of a context.	PBA	i) **GAP from Algebra 1 ii) Focus on quadratics at this time.	
UNIT 5 : POLYNOMIALS					
*	**F.IF.7c**	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	1,5,6 EOY	i) Calculator use item specific.	
	F.IF.4	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. Key features include: intercepts, intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	6,4 EOY	i) Calculator allowed on EOY.	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 2 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
	F.BF.3	Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	2,3,4 PBA 3,5,7,8 EOY	i) Focus on cube roots at this time. ii) Express reasoning about transformations of functions (polynomial, exponential, logarithmic, or trigonometric functions) on PBA. iii) Calculator allowed on PBA reasoning. iv) On EOY, experimenting with cases and illustrating an explanation are not assessed here. Calculator item specific on EOY.	
*	**F.IF.7b**	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	1,5,6 EOY	i) ***GAP from Algebra 1. ii) Focus on square roots and cube roots at this time. iii)Calculator use item specific.	
*	**A.APR.3**	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	3,6 PBA		
	F.IF.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	1,4,5,7 EOY	i) Focus on polynomial functions at this time. ii) Tasks have a context. iii) Calculator use is item specific.	
UNIT 6 : RADICAL AND RATIONAL FUNCTIONS					
	A.REI.2	Solve simple **rational** and **radical equations** in one variable, and give examples showing how extraneous solutions may arise.	3,6 PBA EOY	i) Simple rational equations are limited to those whose numerators and denominators have degree at most 2. No calculator ii)Calculators will be allowed when providing reasoning on number of solutions or correct solution(s). iii)On EOY, no calculator. Simple rational equations are limited to those whose numerators and denominators have degree at most 2.	
	A.REI.1	Given an equation or system of equations, present the solution steps as a logical argument that concludes with the set of solutions (if any).	6 PBA	i) Focus on rational equations here. ii) Simple rational equations are limited to those whose numerators and denominators have degree at most 2. iii) Calculator allowed on PBA (HS.C.16.3) iv)Could be involved in a multi-step problem requiring extended chains of reasoning on PBA (HS.C.CCR).	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 2 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
	F.BF.4a	Find inverse functions. Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. For example, f(x) = 2x3 or f(x) = (x + 1)/(x -1) for x 1.	4 PBA EOY	i) Calculator allowed. ii) Inverses of radicals functions at this time. iii) On EOY, students might need to find inverse while solving contextual problems (F.BF.Int.2).	
	F.IF.4	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. Key features include: intercepts, intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	6,4 EOY	i) Focus on rational models at this time. ii) Calculator allowed on EOY.	
	A.CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*	4,2 PBA	i) Focus on rational equations and inequalities at this time.	
	A.REI.1	Given an equation or system of equations, present the solution steps as a logical argument that concludes with the set of solutions (if any).	6 PBA	i) Focus on radical equations here. ii) Simple rational equations are limited to those whose numerators and denominators have degree at most 2. iii) Calculator allowed on PBA (HS.C.16.3)	
	A.REI.11	Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	1,5, 3 PBA 1,5 EOY	i) Focus on intersection of a line and a rational function. ii) The "explain" part of standard A.REI.11 is not assessed here. For this aspect of the standard, see Sub-Claim c. iii) Calculator can be used when asked to explain how many positive solutions iv) For HS.C.5.11: might be asked how many positive solutions there are to the equation $e^x = x + 2$ and to explain how they know. Calculator allowed on PBA. v) On EOY, students will be asked to find the solutions of intersection and calculator usage will be item specific.	
	F.BF.4a	Find inverse functions. Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. For example, f(x) = 2x3 or f(x) = (x + 1)/(x -1) for x 1.	4 PBA EOY	i) Calculator allowed. ii) Rational inverses at this time. iii) On EOY, students might need to find inverse while solving contextual problems (F.BF.Int.2).	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 3 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
		UNIT 6 : RADICAL AND RATIONAL FUNCTIONS			
*	**A.REI.2**	Solve simple **rational** and **radical equations** in one variable, and give examples showing how extraneous solutions may arise.	3,6 PBA EOY	i) Simple rational equations are limited to those whose numerators and denominators have degree at most 2. No calculator ii) Calculators will be allowed when providing reasoning on number of solutions or correct solution(s). iii) On EOY, no calculator. Simple rational equations are limited to those whose numerators and denominators have degree at most 2.	
	A.REI.1	Given an equation or system of equations, present the solution steps as a logical argument that concludes with the set of solutions (if any).	6 PBA	i) Focus on rational equations here. ii) Simple rational equations are limited to those whose numerators and denominators have degree at most 2. iii) Calculator allowed on PBA (HS.C.16.3)	
	F.BF.4a	Find inverse functions. Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. For example, f(x) = 2x3 or f(x) = (x + 1)/(x -1) for x 1.	4 PBA EOY	i) Calculator allowed. ii) Inverses of radicals functions at this time. iii) On EOY, students might need to find inverse while solving contextual problems (F.BF.Int.2).	
	F.IF.4	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. Key features include: intercepts, intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	6,4 EOY	i) Focus on rational models at this time. ii) Calculator allowed on EOY.	
	A.CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*	4,2 PBA	i) Focus on rational equations and inequalities at this time.	
	A.REI.1	Given an equation or system of equations, present the solution steps as a logical argument that concludes with the set of solutions (if any).	6 PBA	i) Focus on radical equations here. ii) Simple rational equations are limited to those whose numerators and denominators have degree at most 2. iii) Calculator allowed on PBA (HS.C.16.3) iv) Could be involved in a multi-step problem requiring extended chains of reasoning on PBA (HS.C.CCR).	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 3 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
*	**A.REI.1**	Given an equation or system of equations, present the solution steps as a logical argument that concludes with the set of solutions (if any).	6 PBA	i) Focus on rational equations here. ii) Simple rational equations are limited to those whose numerators and denominators have degree at most 2. iii) Calculator allowed on PBA (HS.C.16.3) iv) Could be involved in a multi-step problem requiring extended chains of reasoning on PBA (HS.C.CCR).	
	A.REI.11	Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	1,5, 3 PBA 1,5 EOY	i) Focus on intersection of a line and a rational function. ii) The "explain" part of standard A.REI.11 is not assessed here. For this aspect of the standard, see Sub-Claim c. iii) Calculator can be used when asked to explain how many positive solutions iv) For HS.C.5.11: might be asked how many positive solutions there are to the equation $e^x = x + 2$ and to explain how they know. Calculator allowed on PBA. v) On EOY, students will be asked to find the solutions of intersection and calculator usage will be item specific.	
	F.BF.4a	Find inverse functions. Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. For example, f(x) = 2x3 or f(x) = (x + 1)/(x -1) for x 1.	4 PBA	i) Calculator allowed. ii) Rational inverses at this time. iii) On EOY, students might need to find inverse while solving contextual problems (F.BF.Int.2).	
UNIT 7 : EXPONENTIAL AND LOGARITHMIC FUNCTIONS					
*	**F.LE.5**	Interpret the parameters in a linear or exponential function in terms of a context.	2,4 EOY	i) Students will be asked to solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in F.LE.	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 3 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
	F.IF.7e	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	4,2 PBA 1,5,6 EOY	i) ***GAP from Algebra 1 ii) Focus on exponential functions at this time. iii)This standard could be involved in solving multi-step contextual word problems on PBA (HS.D.2). iv)Could be involved in a multi-step problem requiring extended chains of reasoning on PBA (HS.C.CCR). v) On EOY testing 7e, about half of tasks involve logarithmic functions, while the other half involve trigonometric functions. vi) On EOY, calculator is item specific.	
	F.IF.4	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. Key features include: intercepts, intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	6,4 EOY	i) ***GAP from Algebra 1 ii)Focus on exponential models at this time. iii) Calculator allowed on EOY.	
*	**F.IF.6**	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	1,4,5,7 EOY	i) ***GAP from Algebra 1. ii)Focus on exponential functions at this time. iii) Tasks have a context. iv) Calculator use is item specific.	
*	**A.CED.1**	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*	4,2 PBA	i) Focus on just exponential functions at this time.	
	A.REI.11	Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	1,5, 3 PBA 1,5 EOY	i) Focus on intersection of a line and an exponential function. ii)The "explain" part of standard A.REI.11 is not assessed here. For this aspect of the standard, see Sub-Claim c. iii) Calculator can be used when asked to explain how many positive solutions iv)For HS.C.5.11: might be asked how many positive solutions there are to the equation $e^x = x + 2$ and to explain how they know. Calculator allowed on PBA. v) On EOY, students will be asked to find the solutions of intersection and calculator usage will be item specific.	
*	**F.IF.8b**	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and classify them as representing exponential growth or decay.	7 EOY	i) Focus on equivalent forms of exponential functions at this time. ii) Calculator neutral.	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 3 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
*	**F.IF.9**	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*	1,3,5,6, 8 EOY	i) Focus on exponential graphs at this time. ii) On EOY, function types are limited to polynomial, exponential, logarithmic, and trigonometric functions. iii) Calculator use is item specific.	
*	**F.BF.1b**	Write a function that describes a relationship between two quantities. b. Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*	4,2 PBA EOY	i) Calculator allowed on PBA. ii) Calculator neutral on EOY.	
*	**F.LE.2**	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.)	1,2,6,4 EOY	i) Prompts describe a scenario using everyday language. Mathematical language such as "function," "exponential," etc. is not used. ii) Calculator use is item specific.	
*	**F.BF.4a**	Find inverse functions. Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. For example, f(x) = 2x3 or f(x) = (x + 1)/(x -1) for x 1.	4 PBA	i) Calculator allowed. ii) Rational inverses at this time. iii) On EOY, students might need to find inverse while solving contextual problems (F.BF.Int.2).	
*	**F.LE.4**	For exponential models, express as a logarithm the solution to a b^{ct} = d where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.	4,2 EOY	i) Calculator allowed.	
	F.IF.7e	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	4,2 PBA 1,5,6 EOY	i) Focus on logarithmic functions at this time. ii) This standard could be involved in solving multi-step contextual word problems on PBA (HS.D.2). iii) On EOY testing 7e, about half of tasks involve logarithmic functions, while the other half involve trigonometric functions. iv) On EOY, calculator is item specific.	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 3 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
*	**A.REI.11**	Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	1,5, 3 PBA 1,5 EOY	i) Focus on intersection of a line and a logarithmic function. ii)The "explain" part of standard A.REI.11 is not assessed here. For this aspect of the standard, see Sub-Claim c. iii) Calculator can be used when asked to explain how many positive solutions iv)For HS.C.5.11: might be asked how many positive solutions there are to the equation $e^x = x + 2$ and to explain how they know. Calculator allowed on PBA. v) On EOY, students will be asked to find the solutions of intersection and calculator usage will be item specific.	
		UNIT 8 : STATISTICS 1			
*	**S.IC.1**	Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	1,2,5,6, 4 EOY	i) Calculator allowed.	
*	**S.IC.2**	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?*	2,4 EOY		
*	**S.IC.3**	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	2 PBA 2,4 EOY	i) The "explain" part of standard is not assessed here.	
*	**S.IC.4**	Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	1,2,4,5, 6 PBA	i) On PBA, Decisions from data:Identify relevant data in a data source, analyze it, and draw reasonable conclusions from it. (HS.D.3) Calculator allowed on PBA.	
*	**S.IC.5**	Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	2,6 PBA	i) Calculator allowed.	
*	**S.IC.6**	Evaluate reports based on data.	2,7 PBA	i) Calculator allowed.	
	S.IC.INT.1	Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring applications of course-level knowledge and skills articulated in S.IC.	1,2,4,5, 6 EOY	i) Calculator use is allowed on EOY.	
		UNIT 9 : TRIGONOMETRIC FUNCTIONS			
*	**F.TF.1**	Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	6 EOY	i) Calculator use is item specific.	
*	**F.TF.2**	Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	3 PBA		
*	**F.TF.5**	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.	4,2 EOY	i) Calculator allowed.	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 3 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
*	**F.TF.8**	Prove the Pythagorean identity $\sin^2(\Theta) + \cos^2(\Theta) = 1$ and use it to find sin (Θ), cos (Θ), or tan (Θ), given sin (Θ), cos (Θ), or tan (Θ), and the quadrant of the angle.	3 PBA 5,7 EOY	i) Calculator use is item specific on EOY. ii) On EOY, the "prove" part of standard is not assessed here. Students will be asked to use the identity to find sin q, cos q, or tan q, given sin q, cos q, or tan q, and the quadrant of the angle.	
*	**F.IF.4**	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. Key features include: intercepts, intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	6,4 EOY	i) Focus on two trigonometric functions. ii) Calculator allowed on EOY. iii)On EOY	
*	**F.BF.3**	Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	2,3,4 PBA 3,5,7,8 EOY	i)Focus on trigonometric functions at this time. ii) Express reasoning about transformations of functions (polynomial, exponential, logarithmic, or trigonometric functions) on PBA. Calculator allowed on reasoning. iii) On EOY, experimenting with cases and illustrating an explanation are not assessed here. Calculator item specific on EOY.	
*	**F.IF.7e**	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	4,2 PBA 1,5,6 EOY	i) Focus on trigonometric functions at this time. ii)This standard could be involved in solving multi-step contextual word problems on PBA (HS.D.2) or EOY (F.INT.3) iii)Could be involved in a multi-step problem requiring extended chains of reasoning on PBA (HS.C.CCR). iv) On EOY testing 7e, about half of tasks involve logarithmic functions, while the other half involve trigonometric functions. v) On EOY, calculator is item specific.	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 3 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
	HS.D.CCR	Solve problems using modeling: Identify variables in a situation, select those that represent essential features, formulate a mathematical representation of the situation using those variables, analyze the representation and perform operations to obtain a result, interpret the result in terms of the original situation, validate the result by comparing it to the situation, and either improve the model or briefly report the conclusions.	4 PBA May also involve 1,2,5,6, 7 PBA	i) This relates to the following clusters: N-Q, A-CED, A-REI, F-BF, S-ID. ii) Tasks will draw on securely held content from previous grades and courses, include down to Grade 7, but that are the at the Algebra 2 level of rigor. iii) Tasks prompts describe a scenario using everyday language. Mathematical language such as “function,” “equation,” etc. is not used. iv) Tasks require the students to make simplifying assumptions autonomously in order to formulate a mathematical model. For example, the student might autonomously make a simplifying assumption that every tree in a forest has the same trunk diameter, or that water temperature is a linear function of ocean depth. v) Tasks may require the student to create a quantity of interest in the situation being described.	

* Standards with asterisks may be assessed on common assessment for indicated term.

Algebra 2 TERM 4 (4.5 Weeks)					
*	Ref. Code	STANDARDS	MP	Comments	Date Taught
		UNIT 10: STATISTICS 2			
*	**S.ID.6**	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear and exponential models.*	1,2,4,5, 6 EOY	i) 6a will be assessed at the contextual level.	
*	**S.ID.4**	Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	4,2 EOY	i) Calculator is allowed.	
*	**S.CP.1**	Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").	EOY		
*	**S.CP.2**	Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	EOY		
*	**S.CP.3**	Understand the conditional probability of A given B as P (A and B)/P (B), and interpret independence of A and B as saying that the conditional probability A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.	EOY		
*	**S.CP.4**	Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. *For example, collect: data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.*	EOY		
*	**S.CP.5**	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. *For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.*	EOY		
*	**S.CP.6**	Find the conditional probability of A given B as the function of B's outcomes that also belong to A, and interpret the answer in terms of the model.	EOY		
*	**S.CP.7**	Apply the Addition Rule, P(A or B) = P(A) + P(B) - P(A and B), and interpret the answer in terms of the model.	EOY		
	F.INT.1	Given a verbal description of a polynomial, exponential, rational, trigonometric, or logarithmic functional dependence, write an expression for the function and demonstrate various knowledge and skills articulated in the Functions category in relation to this function.	1,2,8 EOY	i) Any standard under the function cluster could be tested on the EOY. ii) Calculator use is neutral.	
	S.CP.INT	Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring applications of course-level knowledge and skills articulated in S.CP.	1,2,5,6, 4 EOY	i) Calculator is allowed on EOY.	

* Standards with asterisks may be assessed on common assessment for indicated term.