Hesperia Community Schools

Grade: Teacher: Course: Algebra II

Timeline	GLCE"s/HSCE's CCSS	Content What topic(s) is being covered? What do students need to know?	Essential Skills: What do students have to be able to do to connect the content to the skills?	Vocabulary	Assessment: What evidence (products and/or performances is collected to establish that the content and skills have been learned?	Resources What materials, texts, videos, internet, or software support instruction?
S1W1 Through S1W15	L1.2.1 A1.1.1 A1.2.8 A2.1.1 A2.1.2 A2.1.3 A2.1.7 A2.2.2 A2.3.1 A2.3.3	1.1 sets of numbers 1.2 properties of real numbers 1.3 square roots 1.4 simplifying algebraic expression 1.5 properties of exponents 1.6 relations and functions 1.7 function notation 1.8 exploring transformations 1.9 introduction to parent functions	TLW write quantitative relationships and situations using interval notation and set notation.	Function notation, Order of operations, PEMDAS, Combine like terms, solve, function notation, relation, translation, reflection, stretch, compression, vertical, horizontal, parent function, cubic, quadratic, linear, domain, range, transformation	Gradient Tests (50, 100, 200)	Holt Algebra 2, Michigan Ed. 2007
S1W1 through S1W15	A1.2.2 A1.2.8 A1.2.9 A2.1.7 A2.2.2 A2.4.1 A2.4.2 A2.4.3	2.1solving linear equations and inequalities 2.2 proportional reasoning 2.3 graphing linear functions 2.4 writing linear equations 2.5 linear inequalities in two variables 2.6 transforming linear functions 2.7 curve fitting with linear models 2.8 solving absolute-value equations and inequalities 2.9absolute-value functions	State Designated Algebra I Objectives	Balance, Slope, Intercept, Point, Combine like terms, solve, intercept, point, starting value, translation, reflection, stretch, compression, vertical, horizontal, absolute value, no solution, infinite solution, proportion, point-slope	Gradient Tests (50, 100, 200)	Holt Algebra 2, Michigan Ed. 2007
S1W4 Through S1W16	A1.2.8	3.1 using graphs and tables to solve linear systems 3.2 using algebraic methods to solve linear systems 3.3 solving systems of linear inequalities	State Designated Algebra I Objectives	Combine like terms, solve, matrix, system, linear inequality, objective function,	Gradient Tests (50, 100, 200)	Holt Algebra 2, Michigan Ed. 2007

		3.4 linear programming 3.5 linear equations in three dimensions 3.6 solving linear systems in three variables		programming, consistent, inconsistent, z-axis, substitution, elimination, constraint		
S1W4 Through S1W17	L2.1.5 A1.2.9 A2.1.6 A2.1.7 A2.2.2	5.1 using transformations to graph quadratic functions 5.2 properties of quadratic functions in standard form 5.3 solving quadratic equations by graphing and factoring 5.4 completing the square 5.5 complex numbers and roots 5.6 the quadratic formula 5.7 solving quadratic inequalities 5.8 curve fitting with quadratic models 5.9 operations with complex numbers	TLW add, subtract, and multiply complex numbers and use conjugates to simplify quotients of complex numbers.	Imaginary numbers, complex, i, quadratic formula, X-intercept, vertex, starting value, translation, reflection, stretch, compression, vertical, horizontal, axis of symmetry, conjugate, standard for, vertex form, parabola, quadratic, trinomial	Gradient Tests (50, 100, 200)	Holt Algebra 2, Michigan Ed. 2007
S1W7 Through S1W18	A1.1.4 A1.1.5 A1.2.5 A1.2.9 A2.1.7 A2.2.2 A2.3.1	6.1 polynomials 6.2 multiplying polynomials 6.3 dividing polynomials 6.4 factoring polynomials 6.5 finding real roots of polynomials 6.6 fundamental theorem of algebra 6.7 investigating graphs of polynomial functions 6.8 transforming polynomial functions 6.9 curve fitting with polynomial models	TLW define and identify polynomial and rational functions. TLW add, subtract, multiply, and simplify polynomials and rational expressions. TLW divide a polynomial by a monomial / binomial. TLW solve polynomial equations and equations involving rational expressions and justify steps in the solution. TLW identify when a polynomial or rational	Polynomial, Monomial, Binomial, Trinomial, Factor, Difference of Squares, Zeros, Roots, X-intercepts, Vertex, Local Max or Min, translation, reflection, stretch, compression, vertical, horizontal, degree, end behavior, synthetic division, multiple root, turning point, leading coefficient	Gradient Tests (50, 100, 200)	Holt Algebra 2, Michigan Ed. 2007

			function is appropriate for modeling a real-world situation, adapt the general form of the function to the specific situation, and draw reasonable conclusions about situations being modeled using the specific function. TLW apply transformations (shifting, stretching, shrinking, reflecting) to basic functions and represent symbolically.			
S2W1 Through S2W14	L2.1.3 L2.2.3 L2.3.2 A1.1.6 A1.2.7 A2.1.7 A2.2.3 A3.2.2 A3.2.3	7.1 exponential functions, growth and decay 7.2 inverses of relations and functions 7.3 logarithmic functions 7.4 properties of logarithms 7.5 exponential and logarithmic equations and inequalities 7.6 the natural base, *e* 7.7 transforming exponential and logarithmic functions 7.8 curve fitting with exponential and logarithmic models	TLW identify a function as a member of a family of functions based on its symbolic or graphical representation; recognize that different families of functions have different asymptotic behavior. TLW define and identify exponential and logarithmic functions. TLW recognize the graphs of exponential and logarithmic functions and translate between exponential and logarithmic notation. TLW apply the properties of exponential and logarithmic functions. TLW explain the exponential relationship between a number and its base 10 logarithm and use it to relate rules of	Common logarithm, Natural logarithm, Exponential growth, Exponential decay, starting value, switch x & y, asymptote, inverse relation	Gradient Tests (50, 100, 200)	Holt Algebra 2, Michigan Ed. 2007

			logarithms to those of exponents in expressions involving numbers. TLW transform exponential and logarithmic expressions into equivalent forms, using properties of exponents and logarithms. TLW describe, interpret and relate logarithmic functions to real phenomena. TLW solve exponential and logarithmic equations and justify steps in the solution. TLW apply compound interest formulas to solve real-world problems. TLW identify when an exponential or logarithmic function is appropriate for modeling a real-world situation, adapt the general form of the function to the specific situation, and draw reasonable conclusions about the situation being modeled using the specific function. TLW apply transformations (shifting, stretching, shrinking, reflecting) to basic functions and represent symbolically			
S2W2 Through S2W15	A1.2.5 A2.1.6 A3.6.1 A3.6.2	8.1variaton functions 8.2multiplying and dividing rational expressions 8.3 adding and subtracting rations expressions	TLW define and identify polynomial and rational functions. TLW add, subtract, multiply,	Zeros, Roots, X-intercepts, Excluded Values, Factor, inverse, direct, combined,	Gradient Tests (50, 100, 200)	Holt Algebra 2, Michigan Ed. 2007

		8.4 rational functions 8.5 solving rational equations and inequalities 8.6 radical expressions and rational exponents 8.7 radical functions 8.8 solving radical equations and inequalities	and simplify polynomials and rational expressions. TLW sketch the graph of a simple rational function. TLW sketch the graph of a simple rational function. TLW analyze graphs of simple rational functions and understand the relationship between the zeros of the numerator and denominator and the function's intercepts, asymptotes, and domain. TLW solve polynomial equations and equations involving rational expressions and justify steps in the solution. TLW identify when a polynomial or rational function is appropriate for modeling a real-world situation, adapt the general form of the function to the specific situation, and draw reasonable conclusions about situations being modeled using the specific function. TLW apply transformations (shifting, stretching, shrinking, reflecting) to basic functions and represent symbolically.	jointly, hole, rational		
S2W3 Through	A2.1.3 A2.2.1	9.1 multiple representations of functions	State Designated Algebra I	function notation, relation, composite,	Gradient Tests (50, 100, 200)	Holt Algebra 2, Michigan Ed. 2007

S2W16	A2.2.3	9.2 piecewise functions 9.3 transforming functions 9.4 operations with functions 9.5 functions and their inverses 9.6 modeling real-world data	Objectives	switch x & y, piecewise function, step function		
	G1.7.1 G1.7.2 G1.7.3	10.1 introduction to conic sections 10.2 circles 10.3 ellipses 10.4 hyperbolas 10.5 parabolas 10.6 identifying conic sections 10.7 solving nonlinear systems	TLW write the equation of a circle given its center and radius; TLW identify the center and radius given the equation of a circle. TLW identify and distinguish among geometric representations of parabolas, circles, ellipses, and hyperbolas; describe their symmetries, and explain how they are related to cones. TLW graph ellipses and hyperbolas with axes parallel to the x- and y-axes.	center, radius, foci, discriminant, vertex, asymptote, conic section, axis, tangent, co-vertex		Holt Algebra 2, Michigan Ed. 2007
S2W4 Through S2W17	L1.3.1 L1.3.2 L1.3.3 L2.4.1 L2.4.2 L2.4.3 S1.1.1 S1.1.2 S1.2.1 S1.2.2 S1.2.3 S1.3.1 S1.3.2 S1.3.3 S1.3.4 S3.1.1 S3.1.2 S3.1.3	11.1 permutations and combinations 11.2 theoretical and experimental probability 11.3 independent and dependent events 11.4 compound events 11.5 measures of central tendency and variation 11.6 binomial distributions	TLW describe, explain, and apply counting techniques; relate combinations to Pascal's triangle; and know when to use each counting technique. TLW calculate and interpret measures of center including: mean, median, and mode; explain uses, advantages and disadvantages of each measure given a particular set of data and its context. TLW construct and interpret dot plots, histograms, relative frequency histograms, bar graphs, basic control charts,	Permutation, Combination, Probability, Independent, Dependent, Mean, Median, Mode, Central tendency, Normal distribution, standard deviation, IQR, z-score, bell curve, experimental, theoretical, probability, inclusive, exclusive, event, permutation, combination,	Gradient Tests (50, 100, 200)	Holt Algebra 2, Michigan Ed. 2007

	S4.1.1 S4.1.2 S4.2.1 S4.2.2		and box plots with appropriate labels and scales; determine which kinds of plots are appropriate for different types of data; compare data sets and interpret differences based on graphs and summary statistics. TLW define and interpret key terms and expressions related to probability. TLW construct sample space, define an event, and calculate the probability of the event for a simple situation. TLW describe, explain, know when to use and apply counting techniques such as using a tree diagram, the fundamental counting principle, permutations, and combinations. TLW compute probabilities of events (e.g. mutually exclusive, independent, dependent, complementary) using tree diagrams, combinations, permutations, Venn diagrams, or other counting techniques. TLW relate combinations to Pascal's triangle TLW recognize and explain common probability misconceptions such as "hot streaks" or "being due".	factorial, independent, dependent, compound,		

			TLW apply probability concepts to practical situations in such settings as finance, health, ecology, or epidemiology to make informed decisions. TLW calculate and interpret measures of center including: mean, median, and mode; explain uses, advantages and disadvantages of each measure given a particular set of data and its context. TLW compute and interpret measures of spread, including percentiles, quartiles, interquartile range, variance, and standard deviation. TLW construct and interpret dot plots, histograms, relative frequency histograms, bar graphs, basic control charts, and box plots with appropriate labels and scales; determine which kinds of plots are appropriate for different types of data; compare data sets and interpret differences based on graphs and summary statistics. TLW given a distribution of a variable in a data set, describe its shape, including symmetry or skewness, and state how the shape is related to measures of center (mean and median) and measures of variation (range and standard deviation) with particular attention to the			

			effects of outliers on these measures. TLW estimate the position of the mean, median, and mode in both symmetrical and skewed distributions. TLW describe the characteristics of the normal distribution, including its shape and the relationships among its mean, median, and mode TLW know and use the fact that about 68%, 95%, and 99.7% of the data lie within one, two, and three standard deviations of the mean, respectively in a normal distribution. TLW calculate z-scores, use z-scores to recognize outliers, and use z-scores to make informed decisions. TLW know the meanings of a sample from a population and a census of a population, and distinguish between sample statistics and population parameters.			
	L1.2.1 L2.2.1 L2.2.2	12.1 introduction to sequences 12.2 series and summation notation 12.3 arithmetic sequences	TLW calculate the nth term in arithmetic, geometric or other simple sequences. TLW use summation notation	Function notation, Arithmetic, Geometric, Sequence, Series, converge,	Gradient Tests (50, 100, 200)	Holt Algebra 2, Michigan Ed. 2007

		and series 12.4 geometric sequences and series 12.5 mathematical induction and infinite geometric series	to represent quantitative relationships and situations. TLW compute the sums of finite arithmetic and geometric sequences. TLW use iterative processes to compute compound interest or to apply approximation procedures.	recursive, infinite geometric sequence		
S2W5 Through S2W18	A1.2.9 A1.2.10 A3.7.1 A3.7.2 A3.7.3	13.1 right-angle trigonometry 13.2 angles of rotation 13.3 the unit circle 13.4 inverses of trigonometric functions 13.5 the law of sines 13.6 the law of cosines	TLW define and approximate values of sine and cosine using the unit circle. TLW use sine and cosine to define the remaining trigonometric functions. TLW use the unit circle to define exact values of sine and cosine (for integer multiples of $\pi/6$ and $\pi/4$). TLW solve problems using the relationship between degree and radian measures. TLW use inverse trigonometric functions to solve trigonometric equations.	sine, cosine, tangent, opposite operations, sine, cosine, tangent, secant, cosecant, cotangent, opposite, adjacent, hypotenuse	Gradient Tests (50, 100, 200)	Holt Algebra 2, Michigan Ed. 2007
S2W6 Through S2W18	A3.7.4 A3.7.5	14.1 graphs of sine and cosines 14.2 graphs of other trigonometric functions 14.3 fundamental trigonometric identities 14.4 sum and difference identities 14.5 double-angle and half-	TLW graph the sine and cosine functions and analyze the graphs by noting domain, range, period, amplitude, and location of maxima and minima. TLW graph transformations of basic trigonometric functions	amplitude, phase shift, radian, cosine, sine	Gradient Tests (50, 100, 200)	Holt Algebra 2, Michigan Ed. 2007

		angle identities 14.6 solving trigonometric equations	(involving changes in period, amplitude, phase, and vertical orientation) and understand the relationship between constants in the formula and the transformed graph. TLW write the general form of sine and cosine functions given the characteristics of the function (e.g. amplitude, period, phase, vertical shift). TLW identify when a trigonometric function is appropriate for modeling a real-world situation, adapt the general form of the function to the specific situation, and draw reasonable conclusions about situations being modeled using the specific function.			