Mt. Zion High School Curriculum Map

Name:_____Department:_____Math_____Subject:___Algebra II_____

Quarter	Essential Skills	Strategies and Activities	CC Standards	Assessments
1	Students will be able reintroduce numbers, properties, and expressions within the context of linear and absolute value equations and inequalities	1a. Use order of operations to evaluate expressions and formulas	1a. A.SSE.1a, A.SSE.1b	1a-f. Chapter Quiz, Chapter Test, Semester Exam
		1b. Classify real numbers and use properties of real numbers to evaluate expressions	1b. A.SSE.2	
		1c. Translate between verbal expressions and equations and use properties of equality to solve equations	1c. A.CED.1	
		1d. Evaluate and solve absolute value expressions and equations	1d. A.SSE.1b, A.CED.1	
		1e. Solve multi-step inequalities	1e. A.CED.1, A.CED.3	
		1f. Solve compound inequalities and absolute value inequalities as well as understand their relationship	1f. A.CED.1, A.CED.3	
	Students will be able to graph, synthesize, analyze and explain linear functions and inequalities	2a. Analyze and describe domain and range for relations and functions	2a. F.IF.4, F.IF.5	2a-h. Chapter Quiz, Chapter Test, Semester Exam
		2b. Identify and create linear functions	2b. F.IF.4	
		2c. Evaluate and classify slope and rate of change of lines	2c. F.IF.4, F.IF.9	
		2d. Given information about a linear function, create the equation of the linear function	2d. A.SSE.1b, A.CED.2	

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		2e. Use scatter plots and regression to create linear models for prediction	2e. F.IF.4	
		2f. Define and graph piecewise and absolute value functions	2f. F.IF.4, F.IF.7b	
		2g. Understand and use transformations such as translations and reflections to graph parent functions	2g. F.IF.4, F.BF.3	
		2h. Create and graph linear and absolute value inequalities	2h. A.CED.3	

Quarter	Essential skills	Strategies and Activities	CC Standards	Assessments
1 & 2	Students will be able to solve systems of linear equations and inequalities using a variety of methods including graphically, algebraically, and using matrices.	3a. Solve linear systems in two variables using graphing and algebraic methods.	3a. A.CED.3, A.RE.11	3a-h. Chapter Quizzes, Semester Exam
		3b. Solve linear systems of inequalities in two variables by representing the solution as the intersections of the graphs of the individual inequalities	3b. A.CED.3	
		3c. Use the system of inequalities to construct a feasible region subject to an objective function in order to optimize linear relationships	3c. A.CED.3	
		3d. Use algebraic methods to solve linear systems in three variables and understand that the solution represents an ordered triple	3d. A.CED.3	
		3e. Understand dimensions and simple operations of matrices as well as how to represent data in a matrix	3e. A.CED.3	
		3f. Multiply matrices with and without context and the differences between the properties of matrix and scalar multiplication	3f. A.CED.3	
		3g. Evaluate the determinant of a 2x2 and 3x3 matrix and use the determinants to solve systems using Cramer's Rule	3g. A.CED.3	
		3h. Find the inverse of a 2x2 matrix and how its related to the original matrix while using inverses to solve linear systems in two variables	3h. A.CED.3	

Quarter	Essential skills	Strategies and Activities	CC Standards	Assessments
2	Students will be able to differentiate between linear and quadratic function through graphing and methodology of solving both functions. Students will also understand the different types of solutions unique to quadratic functions.	4a. Represent quadratic functions by their graphs and recognize the vertex as the extrema for the functions	4a. A.SSE.1a, F.IF.9	4a-f. Chapter Quiz, Chapter Test, Semester Exam
		4b. Factor quadratic functions and use the factored form to find the zeros of a quadratic function	4b. A.SSE.2, F.IF.8a	
		4c. Define and perform arithmetic operations with complex numbers	4c. N.CN.1, N.CN.2	
		4d. Rewrite a quadratic function in the perfect square form to use square roots to solve any quadratic equation	4d. N.CN.7, F.IF.8a	
		4e. Derive the quadratic formula by using completing the square as well as interpreting the solutions of a quadratic equations in relation to its discriminant	4e. N.CN.7, A.SSE.1b	
		4f. Apply transformations to represent and graph quadratic functions	4f. F.IF.8a, F.BF.3	
		4g. Apply the properties of inequalities to quadratics to solve and graph quadratic inequalities	4g. A.CED.1, A.CED.3	

Quarter	Essential skills	Strategies and Activities	CC Standards	Assessments
2	Students will be able to extend the properties of quadratics to all polynomial functions as well as perform polynomial operations and solve polynomial equations. Students will also generalize and analyze the properties of polynomial functions.	5a. Apply the operations of exponents to the properties of polynomial operations such as addition, subtraction, and multiplication	5a. A.APR.1	5a-h. Chapter Quiz, Chapter Test, Semester Exam
		5b. Extend and analyze the algorithm of long division of numbers as it applies to long division and synthetic division of polynomials	5b. A.APR.6	
		5c. Identify and analyze the end behavior or polynomial functions	5c. F.IF.4, F.IF.7c	
		5d. Identify and analyze the relationship between zeros, roots, and extrema of polynomial functions	5d. F.IF.4, F.IF.7c	
		5e. Apply, extend and generalize the properties of factoring from quadratic functions to polynomial functions	5e. A.CED.1	
		5f. Derive and apply the Factor and Remainder Theorems for polynomial functions	5f. A.APR.2, F.IF.7c	
		5g. Relate the factors and zeros of polynomial functions to their graphs and equations by using the Fundamental Theorem of Algebra	5g. N.CN.9, A.APR.3	
		5h. Derive and apply the Rational Zero Theorem to find all zeros and solutions to polynomial functions	5h. N.CN.9, A.APR.3	

2	Students will be able to apply the properties of inverse functions to construct, graph, simplify, and analyze radical functions.	6a. Apply the four basic arithmetic operations as well as the composition to functions	6a. F.IF.9, F.BF.1b	6a-d. Chapter Quiz, Semester Exam
		6b. Use the definition of an inverse relation to create inverse functions and determine whether two functions are inverses	6b. F.IF.4, F.BF.4a	
		6c. Apply properties of the inverse of a quadratic function to create and graph square root functions and inequalities	6c. F.IF.7b, F.BF.3	
		6d. Apply the properties of inverse relations to evaluate nth roots and radicals	6d. A.SSE.2	