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	Essential Questions	Content	Skills	Assessments	Standards/PIs	Resources/Notes
Unit 1	Why is factoring so important in mathematics? How can we combine more than one factoring method to factor more complicated expressions? Why is it important to simplify algebraic expressions to solve problems? Why are algebraic fractions important in mathematics? How can a proportion be converted into a linear or quadratic equation? How can we recognize a complex fraction?	**Rational Expressions** Factoring Operations with Rational Expressions Solving Equations **Vocabulary** binomial trinomial polynomial degree of a polynomial degree of a term FOIL method base exponent power factor lead coefficient factoring completely solve solution linear absolute value	Recognizes and factors using greatest common factor Recognizes and factors using the difference of two perfect squares Recognizes and factors trinomial expressions with a coefficient of one or greater Recognizes and factors algebraic expressions completely, including trinomials with a lead coefficient of one (after doing GCF) Recognizes and factors algebraic expressions that involves factoring out a negative Recognizes and factors algebraic expressions using the grouping method Multiplies and divides algebraic fractions and expresses the product or quotient in simplest form including factor of -1 Adds or subtracts algebraic fractional		MST3-A2.A.1 MST3-A2.A.7 MST3-A2.A.16 MST3-A2.A.17 MST3-A2.A.23	!

		equation inequality	expressions with like or unlike monomial or binomial denominators Simplifies complex fractional expressions Solves rational equations by multiplying all terms by LCD Solves absolute value equations algebraically and graphically Solves absolute value inequalities algebraically and graphically		
Unit 2	How can evaluating radical expressions be used in mathematics? What skills are needed to simplify radical expressions? How can we tell the difference between a real and an imaginary number?	**Radicals and Complex Numbers** Operations with Radicals Radical Equations Powers of i **Vocabulary** Radicand Root n-th Root Rationalize Imaginary Number (i) Complex Number Conjugate Vector a+bi form	Simplifies radical terms (with or without variable in the radicand) Multiplies and divides radical expressions using like and unlike radical terms and expresses the result in simplest form Adds and subtracts radical expressions using like and unlike radical terms and expresses the result in simplest form Determines the n-th root Recognizes the conjugate of an expression Rationalizes a denominator containing a radical expression		**MST3-A2.N.2** **MST3-A2.N.5** **MST3-A2.N.6** **MST3-A2.N.7** **MST3-A2.N.8** **MST3-A2.N.9** **MST3-A2.A.13** **MST3-A2.A.14** **MST3-A2.A.15** **MST3-A2.A.22**	

			Isolates the radical			
			Employs the correct procedure to solve radical equations			
			Describes the square roots of negative numbers in terms of i			
			Simplifies the powers of i			
			Defines complex numbers			
			Determines conjugates of complex numbers			
			Represents complex numbers graphically			
			Performs algebraic operations with complex numbers and writes answer in a + bi form			
Unit 3	How can we solve a quadratic equation that is not factorable? How can we use our prior knowledge of solving quadratic equations to solve quadratic inequalities? How is solving a system of equations algebraically	**Quadratics** Quadratic Formula Quadratic Equations and Inequalitites Systems of Equations and Graphing	Solves quadratic equations using factoring Identifies parts of the quadratic formula (a, b, c) Solves quadratic equations using the quadratic formula including a + bi form		MST3-A2.A.2 MST3-A2.A.3 MST3-A2.A.4 MST3-A2.A.20 MST3-A2.A.21 MST3-A2.A.24 MST3-A2.A.25 MST3-A2.A.26	

different from solving a system graphically?	**Vocabulary** quadratic quadratic formula discriminant nature of the roots sum of the roots product of the roots completing the square quadratic inequality extraneous roots	Uses the discriminant or a graph to determine the nature of the roots of a quadratic equation Determines the sum and product of the roots of a quadratic equation Determines the quadratic equation, given the roots or the sum and product of its roots Solves quadratic equations using the completing the square method Solves quadratic equations and inequalities (both radical and rational) algebraically and graphically, including equations with extraneous roots Solves a quadratic/linear system of equations graphically			

	Essential Questions	Content	Skills	Assessments	Standards/PIs
Unit 4	How can the domain and range of a function be used in real-life situations? How can prior knowledge of transformations be applied to the composition of functions? How is the center-radius form of the equation of a circle related to the standard form of the equation a circle? How can direct and inverse variation be applied to real-life situations?	**Relations and Functions** Relations/Functions Composition/Inverses Circles/Transformations/Variations **Vocabulary** relation function domain range one-to-one onto composition inverse direct variation inverse variation	Defines a relation and a function Determines when a relation is a function Identifies relations and functions, using graphs Applies the vertical line test Determines the domain and range of a function from its equation Determines the domain and range of a function from its graph Writes functions in functional notation Uses functional notation to evaluate functions for given values in the domain Determines if a function is one-to-one, onto, or both Approximates the solution to polynomial equations of higher degree by inspecting the graph Identifies composite notation Evaluates the	MST3-A2.A.5 MST3-A2.A.37 MST3-A2.A.38 MST3-A2.A.39 MST3-A2.A.40 MST3-A2.A.41 MST3-A2.A.42 MST3-A2.A.43 MST3-A2.A.44 MST3-A2.A.45 MST3-A2.A.46 MST3-A2.A.47 MST3-A2.A.48 MST3-A2.A.49 MST3-A2.A.50 MST3-A2.A.51 MST3-A2.A.52

composition of functions

Writes a composition of functions as a single function

Defines the inverse of a function

Compares a reflection in the line y = x with the inverse of a function

Determines the inverse of a function and uses composition to justify the result

Performs transformations with functions and relations: f(x + a), f(x) + a, f(-x), -f(x), af(x)

States the center of a circle as an ordered pair

Writes the equation of a circle given the graph or the center and radius

Determines the center-radius form for the equation of a circle that is given in standard form

Writes the equation of a circle, given its center and a point on the circle

			Uses direct and inverse variation to solve for unknown values		
Unit 5	How can we express different numbers using a common base? How are radical expressions and fractional exponents related? How are solving exponential equations similar to solving linear equations? Why is "e" significant when solving exponential equations?	**Exponents** Properties Fractional Exponents Exponential Equations Exponential Expressions/Functions **Vocabulary** base exponent power e	Applies the rules of exponents to simplify expressions including: product of powers, power to a power, quotient of powers, zero powers, power of a product, power of a quotient, negative exponents Converts between fractional exponents and radical form Evaluates an expression with fractional exponents (with and without a calculator) Expresses both sides of an exponential equation in terms of the same base Solves an exponential equation appropriately Recognizes the approximate value of "e" as 2.718		MST3-A2.N.1 MST3-A2.A.6 MST3-A2.A.8 MST3-A2.A.9 MST3-A2.A.10 MST3-A2.A.11 MST3-A2.A.12 MST3-A2.A.27 MST3-A2.A.53

			Evaluates exponential expressions involving base e	
			Graphs exponential functions of the form $y = b^x$ for positive values of b, including b = e	
Unit 6	How can we manipulate exponential equations using logs? How can logs be applied to solving real-life word problems?	**Logarithms** Introduction to Logs Properties of Logs Equations and Applications **Vocabulary** logarithm growth decay	Converts between exponential and logarithmic form Evaluates logarithmic expressions in any base Solves basic logarithmic equations by converting to exponential form Graphs logarithmic functions as the inverse of an exponential function Applies the properties of logarithms to rewrite logarithmic expressions in equivalent forms (product, quotient, and power properties) Solves logarithmic equations using	**MST3-A2.A.18** **MST3-A2.A.19** **MST3-A2.A.28** **MST3-A2.A.54**

			properties of logarithms Solves application problems that require the use of logarithms (half-life, growth and decay, compound interest, etc.)		

	Essential Questions	Content	Skills	Assessments	Standards/PIs	Resources/Notes
Unit 7	How can the coordinate plane be compared to and applied to trigonometry? How are the 3 standard trigonometric functions related to their cofunctions and reciprocal functions? How do we use the Pythagorean Theorem and trig functions appropriately to find missing information? What is the relationship between the cosine and sine of an angle and its measure? How can the graphs of the sine, cosine, and tangent functions be applied to real-life situations? How can the Law of Sines and the Law of Cosines be used to help find missing information? Why is it necessary to introduce a new formula to find the area of a triangle? How can we apply our knowledge of solving equations for variables to solving trigonometric equations for angles?	**Trigonometry** The Unit Circle Co-Functions and Reciprocal Functions Arc Length Graphing Sine, Cosine, and Tangent Inverse Trig Functions Reciprocal Trig Functions Law of Sines and Cosines Area of a Triangle or Parallelogram Ambiguous Case Pythagorean Identities Sum and Difference of Angles Formulas Double Angle and Half Angle Formulas Trigonometric Equations **Vocabulary** unit circle quadrant reference angle terminal side standard position co-terminal special angles degrees minutes radians reciprocal functions	Sketches the unit circle and represents angles in standard position Expresses and applies the 6 trigonometric functions as ratios of the sides of a right triangle Recalls the exact values for special angles (0, 30, 45, 60, 90) Sketches and applies the reference angle for angles in standard position Writes trig values as functions of positive acute angles Converts between degrees and radians Applies trigonometry to the coordinate plane ((x, y) --> (cos, sin)) Finds the value of trigonometric functions when given a point on the terminal side of the angle Determines the trigonometric functions of any angle using technology Defines cofunctions and reciprocal functions Knows and applies the cofunction and reciprocal relationships between trigonometric ratios Uses the reciprocal and cofunction relationships to find the value of the secant, cosecant, and cotangent of special angles		MST3-A2.A.55 MST3-A2.A.56 MST3-A2.A.57 MST3-A2.A.58 MST3-A2.A.59 MST3-A2.A.60 MST3-A2.A.61 MST3-A2.A.62 MST3-A2.A.63 MST3-A2.A.64 MST3-A2.A.65 MST3-A2.A.66 MST3-A2.A.67 MST3-A2.A.68 MST3-A2.A.69 MST3-A2.A.70 MST3-A2.A.71 MST3-A2.A.72 MST3-A2.A.73 MST3-A2.A.74 MST3-A2.A.75 MST3-A2.A.76 MST3-A2.A.77 MST3-A2.M.1 MST3-A2.M.2	

co-functions		Uses arc length formula to determine a missing arc, radius, or central angle given specific information
arc length		
amplitude		Sketches and recognizes one cycle of a function of the form y = AsinBx, y = AcosBx, and y = tanx
frequency		
period		
cycles		Determines amplitude, period, frequency and phase shift given the graph or equation of a periodic function
asymptotes		
inverse trig functions		Connects the concepts of domain and range to trig graphs
arc		
included angle		Writes the trigonometric function that is represented by a given graph
vector		
maginitude		
forces		Applies concepts from trig graphs to real life word problems
resultant		
angle of elevation		
angle of depression		Sketches and recognizes the graphs of the inverses of sine, cosine, and tangent
ambiguous case		
		Uses various inverse notation when writing the equations of inverse functions
		Restricts the domain of the sine, cosine, and tanget functions to ensure the existence of an inverse function
		Uses inverse functions to find the measure of an angle given its sine, cosine, or tangent
		Sketches and recognizes the graphs of the functions y = secx, y = cscx, and y = cotx
		Compares and contrasts the graphs, including discussion of asymptotes, domain, period, and cycles

		Solves for an unknown side or angle using the law of sines or law of cosines			
		Applies forces and vectors to the law of cosines			
		Apples angles of elevation and depression to law of sines			
		Determines the area of a triangle or a parallelogram, using the measure of 2 sides and the included angle			
		Determines the solution(s) from the SSA situation (ambiguous case)			
		Justifies the Pythagorean Identities			
		Applies the angle sum and difference formulas for triginometric functions			
		Applies the double angle and half angle formulas for trigonometric functions			
		Solves trigonometric equations for all values of the variable from 0 to 360 (Linear and Quadratic)			
		Substitutes appropriately using Pythagorean Identities and Double Angle formulas			
		Expresses answers in degrees, minutes or radians			
How can we find the probability of independent events? How can the Binomial Theorem be used to find the expansion of higher degree expressions?	**Probability** Binomial Probabilities Combinatortics	Determines the probability of independent events Expands binomials using the Binomial Theorem and finds specific terms of the expansion		MST3-A2.S.9 MST3-A2.S.10 MST3-A2.S.11 MST3-A2.S.12	

Unit 8	How can we apply our knowledge of probability to more complex probability applications? How do we apply the use of permutations, combinations, and the Fundamental Counting Principle to find the number of ways two or more events can occur?	**Vocabulary** indepent events binomial theorem exactly at least at most expansion pascal's triangle permutations combinations compound events	Finds the probability of exactly, at least, at most of "r" successes in "n" trials Calculates theoretical probabilities, including geometric applications Determines a sample space Calculates the number of possible permutations of "n" items taken "r" at a time Calculates the number of possible combinations of "n" items taken "r" at a time Uses permutations, combinations, and the Counting Principle to determine the number of elements in a sample space Analyzes and solves verbal problems	MST3-A2.S.13 MST3-A2.S.13 MST3-A2.S.14 MST3-A2.S.15 MST3-A2.A.36
Unit 9	Why is sigma notation used in mathematics? How are measures of central tendency and dispersion used in statistics? How can statistical data be affected when the type of survey conducted is changed? How can the use of the Normal Curve be applied to real-life situations? How can different regression models be used to represent statistical data?	**Statistics** Sigma Notation Statistical Measure Studies and Surveys Normal Distribution Regression Models **Vocabulary** sigma notation measures of central tendency measures of dispersion survey	Knows and applies sigma notation Calculates measures of central tendency with grouped data Calculates measures of dispersion (range, quartiles, interquartile range, standard deviation and variance) for both samples and populations Differentiates between various types of studies (survey, observation, controlled experiment) Determines factors which may affect the outcomes of a survey	MST3-A2.S.1 MST3-A2.S.2 MST3-A2.S.3 MST3-A2.S.4 MST3-A2.S.5 MST3-A2.S.6 MST3-A2.S.7 MST3-A2.S.8 MST3-A2.S.16

		observation controlled experiment bias normal distribution normal curve percentiles scatter plot regression correlation coefficient	Identifies the properties of a Normal Distribution Interprets the graphs of Normal Distribution Finds the percentages under the Normal Curve Applies percentiles to the Normal Curve Applies the Normal Distribution Curve, and its properties, to word problems involving real-life data Constructs a scatter plot without the use of calculator Determines the appropriate regression model from a scatter plot (linear, logarithmic, exponential, power) Determines the function for the regression model using appropriate technology Uses the regression function to evaluate and predict real world situations (interpolate and extrapolate) Determines the correlation coefficient (positive, negative, none) and uses it to determine the strength of a linear relationship			

	Essential Questions	Content	Skills	Assessments	Standards/PIs	Resources/Notes
Unit 10	How can we differentiate between an arithmetic sequence and a geometric sequence? How can the concept of sigma notation be applied to our study of sequences and series? How are recursive sequences related to arithmetic and geometric sequences?	**Sequences and Series** Sequences Sigma Notation and Series Arithmetic and Geometric Sequences and Series Recursive Sequences **Vocabulary** sequence series arithmetic geometric common difference common ratio recursive explicit formula	Writes the first "n" terms of a sequence given an explicit formula Finds a specific term of a sequence given an explicit formula Writes an explicit formula given the terms of the sequence Represents the sum of a series using Sigma Notation Defines an arithmetic sequence and a geometric sequence Calculates the common difference in an arithmetic sequence Calculates the common ratio in a geometric sequence Determines a specific term of an arithmetic or geomteric sequence Determines the sum of the first "n" terms of an arithmetic or geometric series Applies knowledge to real life word problems Specifies the terms of a sequence given a recursive definition		MST3-A2.A.29 MST3-A2.A.30 MST3-A2.A.31 MST3-A2.A.32 MST3-A2.A.33 MST3-A2.A.34 MST3-A2.A.35	

Key to Standards used in this Map

MST3-A2.N.1 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator A2.N.1 - evaluate numerical expressions with negative and/or fractional exponents, without the aid of a calculator (when the answers are rational numbers) [Algebra 2 and Trigonometry]

MST3-A2.N.2 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator A2.N.2 - perform arithmetic operations (addition, subtraction, multiplication, division) with expressions containing

irrational numbers in radical form [Algebra 2 and Trigonometry]

MST3-A2.N.5 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator A2.N.5 - rationalize a denominator containing a radical expression [Algebra 2 and Trigonometry]

MST3-A2.N.6 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator A2.N.6 - write square roots of negative numbers in terms of i [Algebra 2 and Trigonometry]

MST3-A2.N.7 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator A2.N.7 - simplify powers of i [Algebra 2 and Trigonometry]

MST3-A2.N.8 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator A2.N.8 - determine the conjugate of a complex number [Algebra 2 and Trigonometry]

MST3-A2.N.9 [1 occurence] - MST Standard 3 - Number Sense and Operations Strand - Students will understand meanings of operations and procedures, and how they relate to one another. [Operations] - Performance Indicator A2.N.9 - perform arithmetic operations on complex numbers and write the answer in the form a + bi . [Algebra 2 and Trigonometry]

MST3-A2.A.1 [1 occurence] - MST Standard 3 - Algebra Strand - Students will represent and analyze algebraically a wide variety of problem solving situations. [Equations and Inequalities] - Performance Indicator A2.A.1 - solve absolute value equations and inequalities involving linear expressions in one variable [Algebra 2 and Trigonometry]

MST3-A2.A.2 [1 occurence] - MST Standard 3 - Algebra Strand - Students will represent and analyze algebraically a wide variety of problem solving situations. [Equations and Inequalities] - Performance Indicator A2.A.2 - use the discriminant to determine the nature of the roots of a quadratic equation [Algebra 2 and Trigonometry]

MST3-A2.A.3 [1 occurence] - MST Standard 3 - Algebra Strand - Students will represent and analyze algebraically a wide variety of problem solving situations. [Equations and Inequalities] - Performance Indicator A2.A.3 - solve systems of equations involving one linear equation and one quadratic equation algebraically [Algebra 2 and Trigonometry]

MST3-A2.A.4 [1 occurence] - MST Standard 3 - Algebra Strand - Students will represent and analyze algebraically a wide variety of problem solving situations. [Equations and Inequalities] - Performance Indicator A2.A.4 - solve quadratic inequalities in one and two variables, algebraically and graphically [Algebra 2 and Trigonometry]

MST3-A2.A.5 [1 occurence] - MST Standard 3 - Algebra Strand - Students will represent and analyze algebraically a wide variety of problem solving situations. [Equations and Inequalities] - Performance Indicator A2.A.5 - use direct and inverse variation to solve for unknown values [Algebra 2 and Trigonometry]

MST3-A2.A.6 [1 occurence] - MST Standard 3 - Algebra Strand - Students will represent and analyze algebraically a wide variety of problem solving situations. [Equations and Inequalities] - Performance Indicator A2.A.6 - solve an application which results in an exponential function [Algebra 2 and Trigonometry]

MST3-A2.A.7 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.7 - factor polynomial expressions completely, using any combination of the following techniques: common factor extraction, difference of two perfect squares, quadratic trinomials [Algebra 2 and Trigonometry]

MST3-A2.A.8 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.8 - apply the rules of exponents to simplify expressions involving negative and/or fractional exponents [Algebra 2 and Trigonometry]

MST3-A2.A.9 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.9 - rewrite algebraic expressions that contain negative exponents using only positive exponents [Algebra 2 and Trigonometry]

MST3-A2.A.10 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.10 - rewrite algebraic expressions with fractional exponents as radical expressions [Algebra 2 and Trigonometry]

MST3-A2.A.11 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.11 - rewrite algebraic expressions in radical form as expressions with fractional exponents [Algebra 2 and Trigonometry]

MST3-A2.A.12 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.12 - evaluate exponential expressions, including those with base e [Algebra 2 and Trigonometry]

MST3-A2.A.13 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.13 - simplify radical expressions [Algebra 2 and Trigonometry]

MST3-A2.A.14 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.14 - perform addition, subtraction, multiplication and division of radical expressions [Algebra 2 and Trigonometry]

MST3-A2.A.15 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.15 - rationalize denominators involving algebraic radical expressions [Algebra 2 and Trigonometry]

MST3-A2.A.16 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.16 - perform arithmetic operations with rational expressions and rename to lowest terms [Algebra 2 and Trigonometry]

MST3-A2.A.17 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.17 - simplify complex fractional expressions [Algebra 2 and Trigonometry]

MST3-A2.A.18 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.18 - evaluate logarithmic expressions in any base [Algebra 2 and Trigonometry]

MST3-A2.A.19 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Variables and Expressions] - Performance Indicator A2.A.19 - apply the properties of logarithms to rewrite logarithmic expressions in equivalent forms [Algebra 2 and Trigonometry]

MST3-A2.A.20 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Equations and Inequalities] - Performance Indicator A2.A.20 - determine the sum and product of the roots of a quadratic equation by examining its coefficients [Algebra 2 and Trigonometry]

MST3-A2.A.21 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Equations and Inequalities] - Performance Indicator

A2.A.21 - determine the quadratic equation, given the sum and product of its roots [Algebra 2 and Trigonometry]

MST3-A2.A.22 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Equations and Inequalities] - Performance Indicator A2.A.22 - solve radical equations [Algebra 2 and Trigonometry]

MST3-A2.A.23 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Equations and Inequalities] - Performance Indicator A2.A.23 - solve rational equations and inequalities [Algebra 2 and Trigonometry]

MST3-A2.A.24 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Equations and Inequalities] - Performance Indicator A2.A.24 - know and apply the technique of completing the square [Algebra 2 and Trigonometry]

MST3-A2.A.25 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Equations and Inequalities] - Performance Indicator A2.A.25 - solve quadratic equations, using the quadratic formula [Algebra 2 and Trigonometry]

MST3-A2.A.26 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Equations and Inequalities] - Performance Indicator A2.A.26 - find the solution to polynomial equations of higher degree that can be solved using factoring and/or the quadratic formula [Algebra 2 and Trigonometry]

MST3-A2.A.27 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Equations and Inequalities] - Performance Indicator A2.A.27 - solve exponential equations with and without common bases [Algebra 2 and Trigonometry]

MST3-A2.A.28 [1 occurence] - MST Standard 3 - Algebra Strand - Students will perform algebraic procedures accurately. [Equations and Inequalities] - Performance Indicator A2.A.28 - solve a logarithmic equation by rewriting as an exponential equation [Algebra 2 and Trigonometry]

MST3-A2.A.29 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.29 - identify an arithmetic or geometric sequence and find the formula for its nth term [Algebra 2 and Trigonometry]

MST3-A2.A.30 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.30 - determine the common difference in an arithmetic sequence [Algebra 2 and Trigonometry]

MST3-A2.A.31 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.31 - determine the common ratio in a geometric sequence [Algebra 2 and Trigonometry]

MST3-A2.A.32 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.32 - determine a specified term of an arithmetic or geometric sequence [Algebra 2 and Trigonometry]

MST3-A2.A.33 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.33 - specify terms of a sequence, given its recursive definition [Algebra 2 and Trigonometry]

MST3-A2.A.34 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.34 - represent the sum of a series, using sigma notation [Algebra 2 and Trigonometry]

MST3-A2.A.35 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.35 - determine the sum of the first n terms of an arithmetic or geometric series [Algebra 2 and Trigonometry]

MST3-A2.A.36 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.36 - apply the binomial theorem to expand a binomial and determine a specific term of a binomial expansion [Algebra 2 and Trigonometry]

MST3-A2.A.37 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.37 - define a relation and function [Algebra 2 and Trigonometry]

MST3-A2.A.38 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.38 - determine when a relation is a function [Algebra 2 and Trigonometry]

MST3-A2.A.39 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.39 - determine the domain and range of a function from its equation [Algebra 2 and Trigonometry]

MST3-A2.A.40 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.40 - write functions in functional notation [Algebra 2 and Trigonometry]

MST3-A2.A.41 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.41 - use functional notation to evaluate functions for given values in the domain [Algebra 2 and Trigonometry]

MST3-A2.A.42 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.42 - find the composition of functions [Algebra 2 and Trigonometry]

MST3-A2.A.43 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.43 - determine if a function is one-to-one, onto, or both [Algebra 2 and Trigonometry]

MST3-A2.A.44 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.44 - define the inverse of a function [Algebra 2 and Trigonometry]

MST3-A2.A.45 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.45 - determine the inverse of a function and use composition to justify the result [Algebra 2 and Trigonometry]

MST3-A2.A.46 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Patterns, Relations and Functions] - Performance Indicator A2.A.46 - perform transformations with functions and relations: f(x+a), f(x)+a), f(-x), -f(x), af(x) [Algebra 2 and Trigonometry]

MST3-A2.A.47 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Coordinate Geometry] - Performance Indicator A2.A.47 - determine the center-radius form for the equation of a circle in standard form [Algebra 2 and Trigonometry]

MST3-A2.A.48 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Coordinate Geometry] - Performance Indicator A2.A.48 - write the equation of a circle, given its center and a point on the circle [Algebra 2 and Trigonometry]

MST3-A2.A.49 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Coordinate Geometry] - Performance Indicator A2.A.49 - write the equation of a circle from its graph [Algebra 2 and Trigonometry]

MST3-A2.A.50 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Coordinate Geometry] - Performance Indicator A2.A.50 - approximate the solution to polynomial equations of higher degree by inspecting the graph [Algebra 2 and Trigonometry]

MST3-A2.A.51 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Coordinate Geometry] - Performance Indicator A2.A.51 - determine the domain and range of a function from its graph [Algebra 2 and Trigonometry]

MST3-A2.A.52 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Coordinate Geometry] - Performance Indicator A2.A.52 - identify relations and functions, using graphs [Algebra 2 and Trigonometry]

MST3-A2.A.53 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Coordinate Geometry] - Performance Indicator A2.A.53 - graph exponential functions of the form y=bx for positive values of b, including b=e [Algebra 2 and Trigonometry]

MST3-A2.A.54 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Coordinate Geometry] - Performance Indicator A2.A.54 - graph logarithmic functions, using the inverse of the related exponential function [Algebra 2 and Trigonometry]

MST3-A2.A.55 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.55 - express and apply the six trigonometric functions as ratios of the sides of a right triangle [Algebra 2 and Trigonometry]

MST3-A2.A.56 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.56 - know the exact and approximate values of the sine, cosine, and tangent of 0°, 30°, 45°, 60°, 90°, 180°, and 270° angles [Algebra 2 and Trigonometry]

MST3-A2.A.57 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.57 - sketch and use the reference angle for angles in standard position [Algebra 2 and Trigonometry]

MST3-A2.A.58 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.58 - know and apply the co-function and reciprocal relationships between trigonometric ratios [Algebra 2 and Trigonometry]

MST3-A2.A.59 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.59 - use the reciprocal and co-function relationships to find the value of the secant, cosecant, and cotangent of 0°, 30°, 45°, 60°, 90°, 180°, and 270° angles [Algebra 2 and Trigonometry]

MST3-A2.A.60 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.60 - sketch the unit circle and represent angles in standard position [Algebra 2 and Trigonometry]

MST3-A2.A.61 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.61 - determine the length of an arc of a circle, given its radius and the measure of its central angle [Algebra 2 and Trigonometry]

MST3-A2.A.62 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.62 - find the value of trigonometric functions, if given a point on the terminal side of angle theta [Algebra 2 and Trigonometry]

MST3-A2.A.63 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.63 - restrict the domain of the sine, cosine, and tangent functions to ensure the existence of an inverse function [Algebra 2 and Trigonometry]

MST3-A2.A.64 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.64 - use inverse functions to find the measure of an angle, given its sine, cosine, or tangent [Algebra 2 and Trigonometry]

MST3-A2.A.65 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.65 - sketch the graph of the inverses of the sine, cosine, and tangent functions [Algebra 2 and Trigonometry]

MST3-A2.A.66 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.66 - determine the trigonometric functions of any angle, using technology [Algebra 2 and Trigonometry]

MST3-A2.A.67 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.67 - justify the pythagorean identities [Algebra 2 and Trigonometry]

MST3-A2.A.68 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.68 - solve trigonometric equations for all values of the variable from 0° to 360° [Algebra 2 and Trigonometry]

MST3-A2.A.69 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.69 - determine amplitude, period, frequency, and phase shift, given the graph or equation of a periodic function [Algebra 2 and Trigonometry]

MST3-A2.A.70 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.70 - sketch and recognize one cycle of a function of the form y = asin bx or y=acosbx [Algebra 2 and Trigonometry]

MST3-A2.A.71 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.71 - sketch and recognize the graphs of the functions y = sec(x), y=csc(x), y=tan(x), and y=cot(x) [Algebra 2 and Trigonometry]

MST3-A2.A.72 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.72 - write the trigonometric function that is represented by a given periodic graph [Algebra 2 and Trigonometry]

MST3-A2.A.73 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric

Functions] - Performance Indicator A2.A.73 - solve for an unknown side or angle, using the law of sines or the law of cosines [Algebra 2 and Trigonometry]

MST3-A2.A.74 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.74 - determine the area of a triangle or a parallelogram, given the measure of two sides and the included angle [Algebra 2 and Trigonometry]

MST3-A2.A.75 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.75 - determine the solution(s) from the ssa situation (ambiguous case) [Algebra 2 and Trigonometry]

MST3-A2.A.76 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.76 - apply the angle sum and difference formulas for trigonometric functions [Algebra 2 and Trigonometry]

MST3-A2.A.77 [1 occurence] - MST Standard 3 - Algebra Strand - Students will recognize, use, and represent algebraically patterns, relations, and functions. [Trigonometric Functions] - Performance Indicator A2.A.77 - apply the double-angle and half-angle formulas for trigonometric functions [Algebra 2 and Trigonometry]

MST3-A2.M.1 [1 occurence] - MST Standard 3 - Measurement Strand - Students will determine what can be measured and how, using appropriate methods and formulas. [Units of Measurement] - Performance Indicator A2.M.1 - define radian measure [Algebra 2 and Trigonometry]

MST3-A2.M.2 [1 occurence] - MST Standard 3 - Measurement Strand - Students will determine what can be measured and how, using appropriate methods and formulas. [Units of Measurement] - Performance Indicator A2.M.2 - convert between radian and degree measures [Algebra 2 and Trigonometry]

MST3-A2.S.1 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will collect, organize, display, and analyze data. [Collection of Data] - Performance Indicator A2.S.1 - understand the differences among various kinds of studies [Algebra 2 and Trigonometry]

MST3-A2.S.2 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will collect, organize, display, and analyze data. [Collection of Data] - Performance Indicator A2.S.2 - determine factors which may affect the outcome of a survey [Algebra 2 and Trigonometry]

MST3-A2.S.3 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will collect, organize, display, and analyze data. [Organization and Display of Data] - Performance Indicator A2.S.3 - calculate measures of central tendency with group frequency distributions [Algebra 2 and Trigonometry]

MST3-A2.S.4 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will collect, organize, display, and analyze data. [Organization and Display of Data] - Performance Indicator A2.S.4 - calculate measures of dispersion (range, quartiles, interquartile range, standard deviation, variance) for both samples and populations [Algebra 2 and Trigonometry]

MST3-A2.S.5 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will collect, organize, display, and analyze data. [Organization and Display of Data] - Performance Indicator A2.S.5 - know and apply the characteristics of the normal distribution [Algebra 2 and Trigonometry]

MST3-A2.S.6 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will make predictions that are based upon data analysis. [Predictions from Data] - Performance Indicator A2.S.6 - determine from a scatter plot whether a linear, logarithmic, exponential, or power regression model is most appropriate [Algebra 2 and Trigonometry]

MST3-A2.S.7 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will make predictions that are based upon data analysis. [Predictions from Data] - Performance Indicator A2.S.7 - determine the function for the regression model, using appropriate technology, and use the regression function to interpolate and extrapolate from the data [Algebra 2 and Trigonometry]

MST3-A2.S.8 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will make predictions that are based upon data analysis. [Predictions from Data] - Performance Indicator A2.S.8 - interpret within the linear regression model the value of the correlation coefficient as a measure of the strength of the relationship [Algebra 2 and Trigonometry]

MST3-A2.S.9 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will understand and apply concepts of probability. [Probability] - Performance Indicator A2.S.9 - differentiate between situations requiring permutations and those requiring combinations [Algebra 2 and Trigonometry]

MST3-A2.S.10 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will understand and apply concepts of probability. [Probability] - Performance Indicator A2.S.10 - calculate the number of possible permutations (nPr) of n items taken r at a time [Algebra 2 and Trigonometry]

MST3-A2.S.11 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will understand and apply concepts of probability. [Probability] - Performance Indicator A2.S.11 - calculate the number of possible combinations (nCr) of n items taken r at a time [Algebra 2 and Trigonometry]

MST3-A2.S.12 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will understand and apply concepts of probability. [Probability] - Performance Indicator A2.S.12 - use permutations, combinations, and the fundamental principle of counting to determine the number of elements in a sample space and a specific subset (event) [Algebra 2 and Trigonometry]

MST3-A2.S.13 [2 occurences] - MST Standard 3 - Statistics and Probability Strand - Students will understand and apply concepts of probability. [Probability] - Performance Indicator A2.S.13 - calculate theoretical probabilities, including geometric applications [Algebra 2 and Trigonometry]

MST3-A2.S.14 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will understand and apply concepts of probability. [Probability] - Performance Indicator A2.S.14 - calculate empirical probabilities [Algebra 2 and Trigonometry]

MST3-A2.S.15 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will understand and apply concepts of probability. [Probability] - Performance Indicator A2.S.15 - know and apply the binomial probability formula to events involving the terms exactly, at least, and at most [Algebra 2 and Trigonometry]

MST3-A2.S.16 [1 occurence] - MST Standard 3 - Statistics and Probability Strand - Students will understand and apply concepts of probability. [Probability] - Performance Indicator A2.S.16 - use the normal distribution as an approximation for binomial probabilities [Algebra 2 and Trigonometry]