Scope & Sequence	Math Department																		
Reviewed September, 2013																			
	K5	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Pre-Algebra (PA)	Algebra 1 A (Aa)	Algebra 1b (Ab)	Algebra 1 (A1)	Geometry (G)	Algebra 2 Regular (a2)	Algebra 2 Advance (A2)	College Algebra (CA)	Finite (FI)	Statistics (S)	Pre-Calculus (PC)	Calculus (C)
I. Numbers/Numeration																			
A. Whole Numbers																			
1. Recognizing/Writing	K5	1	2	3	4	5													
2. Comparing	K5	1	2	3	4	5													
3. Ordering	K5	1	2	3	4	5													
4. Recognize Pattern/sequence	K5	1	2	3	4	5													
5. Counting	K5	1	2	3	4	5													
6. Identifying Place Values/Comas		1	2	3	4	5													
7. Rounding			2	3	4	5													
8. Understanding Multiples		1	2	3	4	5													
9. Writing Odd/Even Numbers		1	2	3	4	5													
10. Using Ordinal Numbers	K5	1	2	3	4	5													
11. Reading Number Words	K5	1	2	3	4	5													
12. Recognizing Roman Numbers		1	2	3	4	5													
B. Positive Rational Numbers																			
1. Using Decimals		1	2	3	4	5	6												
2. Comparing Decimals						5	6												
3. Labeling on Number Line						5	6												
4. Rounding to nearest cent						5													
5. Writing decimals as fractions					4	5	6												
6. Identifying fractional parts of numbers	K5	1		3	4	5													
7. Writing remainders as fractions				3	4	5													
8. Recognizing equal fractions				3	4	5	6												
9. Reducing fractions				3	4	5	6												
10. Understanding proper/improper fractions					4	5	6												
11. Finding least common denominators					4	5	6												
12. Converting fractions to decimals						5	6												
13. Using percents						5	6												
C. Real																			
1. Translate verbal expressions to algebraic expressions							6	PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
2. Evaluate expressions containing variables							6	PA	Aa	Ab	A1	G	a2	A2	CA				
3. Use number line for ordering integers							6	PA	Aa	Ab	A1	G	a2	A2	CA				
4. Use symbols of exponents and roots								PA	Aa	Ab	A1	G	a2	A2	CA				
5. Write equivalent fractions, decimals, %							6	PA	Aa	Ab	A1	G	a2	A2	CA				
6. Learn symbols of probability							6	PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
7. Understand concept and symbols of absolute value								PA	Aa	Ab	A1	G	a2	A2					
8. Arrange polynomials by degree										Ab	A1	G	a2	A2					

9. Define and indentify rational and irrationals numbers								PA	Aa	Ab	A1	G							
10. Create a matrix and name it using its dimensions								PA	Aa	Ab	A1		a2	A2	CA	FI		PC	
11. Write the identity matrix for any square matrix														A2	CA	FI		PC	
12. Represent numbers in scientific notation								PA		Ab	A1			A2	CA			PC	
13. Identify the characteristic and the mantissa of a logarithm														A2	CA			PC	
D. Complex																			
1. Define the imaginary number "i"													a2	A2	CA			PC	
2. Identify the real and imaginary part of a complex number													a2	A2	CA			PC	
3. Express complex numbers in polar form																		PC	
E. Other																			
3. Find common logarithms and antilogarithms														A2	CA			PC	C
4. Find natural logarithms of numbers														A2	CA			PC	C
II. Operations																			
A. Addition																			
1. Memorizing Meaning/Basic Fasts	K5	1	2	3	4	5													
2. Add; no renaming	K5	1	2	3	4	5													
3. Add; 1 renaming		1	2	3	4	5													
4. Add; 3 or more addends		1	2	3	4	5													
5. Add; more than one renaming		1	2	3	4	5	6												
6. Estimating			2	3	4	5	6												
7. Checking				3	4	5	6												
8. Adding fractions				3	4	5	6												
9. Adding mixed numbers				3	4	5	6												
10. Adding with uncommon denominators.					4	5	6												
11. Adding decimals					4	5	6												
B. Subtraction																			
1. Memorizing Meaning/Basic Fasts	K5	1	2	3	4	5													
2. Subtract; no renaming	K5	1	2	3	4	5													
3. Subtract; 1 renaming		1	2	3	4	5													
4. Subtract; more than 1 renaming		1	2	3	4	5													
5. Subtract with Zero		1	2	3	4	5	6												
6. Estimating differences			2	3	4	5	6												
7. Checking				3	4	5	6												
8. Sub. Fractions with barrowing				3	4	5	6												
9. Barrowing w/ uncommon Denom.				3	4	5	6												
10. Subtracting decimals				3	4	5	6												
C. Multiplication																			
1. Memorizing Meaning/Basic Fasts		1	2	3	4	5													
2. Understanding Factors		1	2	3	4	5													
3. Multiplying by 1 digit factor				3	4	5													
4. Using 4 Ways to show mult. Facts				3	4	5													
5. Carrying				3	4	5													
6. Using 6 ways to prove				3	4	5													

7. Multpying money				3	4	5													
8. Regrouping Factors				3	4	5													
9. Multiply Two-digit Factors				3	4	5													
10. Understanding Partial Products				3	4	5													
11. Multiply 3 digit times 2 digit factors				3	4	5													
12. Checking					4	5													
13. Multiplying by 10 and 100					4	5													
14. Multiplying by 3 digit factors					4	5	6	PA											
19. Multiplying Fractions					4	5	6	PA											
20. Multiplying Fraction and Whole					4	5	6	PA											
21. Multiplying Fractions and Mixed numbers					4	5	6	PA											
22. Doing Cross Multiplication						5	6	PA											
23. Multiplying Decimals						5	6	PA	Aa										
24. Find the square of a number						5	6	PA	Aa	Ab	A1								
25. Find the cube and higher powers of numbers						5	6	PA	Aa	Ab	A1								
D. Division																			
1. Memorizing Meaning/Basic Fasts			2	3	4	5													
2. Divide with One digit Divisor				3	4	5													
3. Use Five steps for division				3	4	5													
4. Checking				3	4	5													
5. Finding Remainders				3	4	5													
6. Dividing Money				3	4	5													
7. Short Division				3	4	5													
8. Divide with Two Digit Divisors				3	4	5													
9. Estimating Quotients				3	4	5													
10. Estimating 2 digit divisors					4	5													
11. Divide with 3 Digit Divisors						5													
12. Divisibility Rules							6	PA					a2						
13. Dividing Fractions					4	5	6												
14. Dividing Decimals					4	5	6												
15. Factoring					4	5	6	PA	Aa					A2	CA			PC	C
16. Finding Common Factors													a2	A2	CA			PC	C
17. Finding Greatest Common Factor							6	PA	Aa		A1			A2	CA			PC	C
18. Finding Least Common Factor							6	PA	Aa		A1			A2	CA			PC	C
19. Find the square root of a number									Aa	Ab	A1	G	a2	A2	CA			PC	C
20. Find the cube root and higher roots of numbers.												G	a2	A2	CA			PC	C
E. Operations with algebraic expressions																			
1. Add, subtract, multply, divide and simplify monomials.								PA	Aa	Ab	A1		a2	A2	CA			PC	C
2. Add, subtract, multiply and simplify polynomials								PA	Aa	Ab	A1		a2	A2	CA			PC	C
3. Factor polynomials								PA	Aa	Ab	A1		a2	A2	CA			PC	C
4. Divide polynomials using long division and synthetic division.								PA	Aa	Ab	A1		a2	A2	CA			PC	C
5. Simplify complex fractions															CA			PC	C
F. Calculator																			
1. Use a calculator to find powers and estimate roots of numbers									Aa	Ab	A1		a2	A2	CA	FI	S	PC	C

2. Input and use a given program on a programmable, graphing calculator													a2	A2	CA	FI	S	PC	C
G. Trigonometry																			
1. Use a calculator to find values of trigonometric functions														A2	CA			PC	C
2. Use right triangles to find trigonometric values												G		A2	CA			PC	C
3. Verify trigonometric identities using various methods														A2	CA			PC	C
4. Find values of sine and cosine involving sum and difference formulas														A2	CA			PC	C
5. Find values of sine and cosine involving half- and double-angle formulas														A2	CA			PC	C
H. Exponents/Roots																			
1. Add, subtract, multiply, divide and simplify radical expressions										Ab	A1	G	a2	A2	CA			PC	C
2. Add, subtract, multiply, divide and simplify complex numbers										Ab	A1		a2	A2	CA			PC	C
3. Add, subtract, multiply, divide and simplify rational expressions										Ab	A1		a2	A2	CA			PC	C
4.. Add, subtract, multiply and divide using scientific notation														A2				PC	C
5. Rationalize the denominator of a fraction containing a radical expression										Ab	A1		a2	A2	CA			PC	C
5. Simplify expressions containing rational exponents														A2	CA			PC	C
6. Simplify radicals containing negative radicands										Ab	A1			A2	CA			PC	C
7. Simplify rational expressions containing complex numbers in the denominator														A2	CA			PC	C
8. Simplify radicals having various indices														A2	CA			PC	C
9. Use the properties of exponents										Ab	A1		a2	A2	CA			PC	C
I. Vectors																			
1. Add and subtract vectors graphicallly																		PC	
2. Add, subtract, multiply, and find the magnitude of vectors algebraically																		PC	
3. Add and subtract vectors in three-dimensional space																		PC	
4. Find the magnitude of vectors in three-dimensional space																		PC	
5. Find the inner and cross products of two vectors																		PC	
6. Determine whether two vectors are perpendicular																		PC	
7. Find the product and quotient of complex numbers in polar form																		PC	
8. Find powers and roots of complex numbers in polar form using DeMoivre's theorem																		PC	
J. Matrices																			
1. Add and subtract matrices									Aa	Ab	A1			A2	CA	FI		PC	

2. Perform scalar multiplication of matrices									Aa	Ab	A1			A2	CA	FI		PC	
3. Perform matrix multiplication									Aa	Ab	A1			A2	CA	FI		PC	
4. Evaluate 2nd and 3rd order determinants														A2	CA	FI		PC	
5. Find inverses of 2nd order matrices														A2	CA	FI		PC	
K. Calculus																			
1. Find the derivative of an algebraic function by using the definition of a derivative. .																			C
2. Apply formulas to find the derivative of algebraic, trigonometric, exponential, and logarithmic functions and their inverses.																			C
3. Apply formulas to find the derivative of the sum, product, quotient, inverse, and composite (chain rule) of elementary functions.																			C
4. Find the derivative of an implicitly defined function.																			C
5. Find the higher order derivatives of algebraic, trigonometric, exponential, and logarithmic functions.																			C
6. Use logarithmic differentiation as a technique to differentiate nonlogarithmic functions.																			C
7. Compute an approximate value for a definite integral using Riemann Sums, Trapezoidal Rule and Simpson's Rule																			C
L. Other																			
1. Decompose a rational expression into partial fractions																		PC	C
III. Equations/ Expressions/ Functions																			
A. General																			
1. Writing a Number Sentence		1	2	3	4	5	6	PA	Aa	Ab	A1								
2. Finding Missing addends		1	2	3	4	5	6	PA	Aa	Ab	A1								
3. Finding Missing Factors			2	3	4	5	6	PA	Aa	Ab	A1								
4. Understanding Order of operation							6	PA	Aa	Ab	A1		a2	A2	CA			PC	
5. Recognize Inequalities			2	3	4	5	6	PA	Aa	Ab	A1								
6. Finding Missing minuends			2	3	4	5	6	PA	Aa	Ab	A1								
7. Using properties of equality						5	6	PA	Aa	Ab	A1	G							
8. Translate word expressions into mathematical expressions								PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
9. Translate word sentences into equations								PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
10. Use proportions to solve problems								PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
11. Use proportions and equations to solve percent problems								PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
12. Solve equations containing absolute value								PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
13. Use the properties of inequalities								PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
14. Identify and solve compound sentences using "and" and "or"									Aa	Ab	A1		a2	A2	CA			PC	
15. Solve absolute value equations and inequalities								PA	Aa	Ab	A1		a2	A2	CA			PC	

16. Determine whether a given relation is a function									Aa	Ab	A1		a2	A2	CA			PC	C
17. Identify the domain and range of any relation or function								PA	Aa	Ab	A1		a2	A2	CA			PC	C
18. Identify an odd function and an even function													a2	A2	CA			PC	C
19. Find the values of functions for given elements of the domain														A2	CA			PC	C
20. Find the composition of functions algebraically and graphically.														A2	CA			PC	C
21. Determine the inverse of a relation or a function														A2	CA			PC	C
22. Find the inverse of a function algebraically and graphically.														A2	CA			PC	C
23. Explain how composition of functions and finding the inverse of a function affects the domain and range of the functions.														A2	CA			PC	
B. Linear																			
1. Solving linear equations																			
a. Mentally							6	PA	Aa	Ab	A1	G	a2	A2	CA			PC	
b. Substitution								PA	Aa	Ab	A1	G	a2	A2	CA	FI		PC	
c. Inverse operations							6	PA	Aa	Ab	A1		a2	A2	CA	FI		PC	
2. Solve multi-step linear equations								PA	Aa	Ab	A1								
a. Using properties for simplification									Aa	Ab	A1		a2	A2	CA	FI		PC	C
b. Equations with variables on both sides									Aa	Ab	A1		a2	A2	CA	FI		PC	C
3. Solving system of equations																			
a. Graphing									Aa	Ab	A1		a2	A2	CA	FI		PC	C
b. Substitution									Aa	Ab	A1		a2	A2	CA	FI		PC	C
c. Elimination									Aa	Ab	A1		a2	A2	CA	FI		PC	C
d. Using Cramer's rule													a2	A2				PC	C
4. Find the distance between two points									Aa	Ab	A1	G	a2	A2	CA			PC	C
5. Find the slope of a line through two points									Aa	Ab	A1	G	a2	A2	CA			PC	C
6. Prove geometric theorems involving slope, distance, and midpoints analytically												G							
7. Write linear equations in standard form									Aa	Ab	A1		a2	A2	CA	FI		PC	
8. Determine the slope and intercepts of a line									Aa	Ab	A1	G	a2	A2	CA	FI		PC	C
9. Write linear equations using point-slope form									Aa	Ab	A1		a2	A2	CA			PC	
10. Write the slope-intercept form of an equation of a line									Aa	Ab	A1	G	a2	A2	CA			PC	
11. Write equations of parallel and perpendicular lines									Aa	Ab	A1	G	a2	A2	CA			PC	
12. Prove geometric theorems involving parallel and perpendicular lines analytically												G							
13. Find zeros of linear functions									Aa	Ab	A1	G		A2	CA				
14. Find the optimum value of a function defined for a polygonal convex set														A2	CA	FI			
15. Find the maximum and minimum values of a function over a region using linear programming techniques.														A2	CA	FI			
16. Solve a system of linear equations in three variables														A2	CA	FI		PC	

C. Matrices																			
1. Solve problems using matrix logic													a2	A2	CA			PC	
2. Find unknown values in equal matrices													a2	A2	CA			PC	
3. Write a system of linear equations as a matrix and use the inverse to solve the system													a2	A2	CA			PC	
4. Solve systems of linear equations using matrix operations on a graphing calculator													a2	A2	CA	FI		PC	
5. Solve a system of equations using an augmented matrix in echelon form													a2	A2	CA	FI		PC	
D. Quadratics																			
1. Solve quadratic equations by graphing													a2	A2	CA			PC	C
2. Solve quadratic equations by factoring									Aa	Ab	A1		a2	A2	CA			PC	C
3. Solve quadratic equations by completing the square													a2	A2	CA			PC	C
4. Solve quadratic equations by the quadratic formula									Aa	Ab	A1		a2	A2	CA			PC	C
5. Solve quadratic equations that have pure imaginary solutions														A2	CA			PC	C
6. Use the discriminant to determine the nature of the roots of a quadratic equation														A2				PC	C
7. Find the sum and product of the roots of a quadratic equation														A2	CA			PC	C
8. Find all possible integral roots of a quadratic equation														A2	CA			PC	C
9. Find a quadratic equation to fit a given condition														A2	CA			PC	C
10. Solve third and fourth degree equations that contain a quadratic factor														A2	CA			PC	C
11. Solve other nonquadratic equations using quadratic techniques														A2				PC	C
12. Write functions in quadratic form														A2				PC	C
13. Identify the quadratic term, the linear term and the constant term of a quadratic function									Aa	Ab	A1		a2	A2	CA			PC	C
14. Explore the effect of changing coefficients for given linear and quadratic functions														A2	CA			PC	
15. Determine the equation of a parabola from given information about the graph														A2	CA			PC	
16. Solve quadratic inequalities in one variable														A2	CA			PC	
E. Polynomials																			
1. Determine roots of polynomial equations													a2	A2	CA			PC	C
2. Apply the fundamental theorem of algebra													a2	A2	CA			PC	C
3. Find the factors of polynomials using the remainder and factor theorems													a2	A2	CA			PC	C
4. Identify all possible rational roots of a polynomial equation by using the rational root theorem														A2				PC	
5. Determine the number of positive and negative real zeros a polynomial function has														A2				PC	

6. Approximate the real zeros of a polynomial function														A2				PC	C
F. Conics																			
1. Write equations of parabolas													a2	A2	CA			PC	C
2. Write equations of circles														A2	CA			PC	C
3. Write equations of ellipses														A2				PC	C
4. Write equations of hyperbolas														A2				PC	C
5. Write the equation of a conic section in standard form														A2				PC	C
6. Identify a conic section from its equation														A2				PC	C
7. Use the standard and general forms of the equation of a circle														A2				PC	C
8. Use the standard and general forms of the equation of a parabola														A2				PC	C
9. Use the standard and general forms of the equation of an ellipse														A2				PC	C
10. Use the standard and general forms of the equation of a hyperbola														A2				PC	C
11. Recognize conic sections by their equations														A2				PC	C
12. Solve systems of quadratic equations algebraically																		PC	C
G. Radical functions																			
1. Write expressions with rational exponents in simplest radical form and vice versa													a2	A2	CA			PC	C
2. Evaluate expressions in either exponential or radical form													a2	A2	CA			PC	C
3. Simplify expressions containing rational exponents													a2	A2	CA			PC	C
4. Solve radical equations and inequalities														A2	CA			PC	C
H. Rational functions																			
1. State the domain and range of a rational function.													a2	A2	CA			PC	C
2. Identify the vertical and horizontal asymptotes of a rational function.														A2	CA			PC	C
3. Determine horizontal, slant, and vertical asymptotes of rational functions														A2				PC	C
4. Simplify rational expressions														A2				PC	C
5. Simplify rational expressions containing complex numbers in the denominator														A2				PC	C
6. Find the least common denominator of two or more algebraic expressions																		PC	C
7. Solve rational equations and inequalities														A2				PC	C
I. Exponential and Logarithmic functions																			
1. Evaluate and simplify expressions involving real exponents							6	PA	Aa	Ab				A2	CA			PC	C
2. Evaluate expressions with irrational exponents														A2				PC	C
3. Simplify expressions and solve equations involving real exponents							6	PA	Aa	Ab	A1	G	a2	A2				PC	C
4. Write exponential equations in logarithmic form and vice versa													a2	A2	CA			PC	C
5. Evaluate logarithmic expressions														A2	CA			PC	C
6. Find common logarithms and antilogarithms														A2	CA			PC	C

7. Identify the characteristic and the mantissa of a common logarithm																		PC	C
8. Use common logarithms to compute powers and roots														A2	CA			PC	C
9. Evaluate e^x by using the exponential series														A2	CA			PC	C
10. Use the exponential function y = e^x														A2	CA			PC	C
11. Find natural logarithms of numbers														A2	CA			PC	C
12. Solve equations using natural logarithms														A2	CA			PC	C
13. Solve equations involving logarithmic functions														A2	CA			PC	C
14. Solve equations or simplify and evaluate expressions using properties of logarithms														A2	CA			PC	C
15. Solve equations with variable exponents using logarithms														A2	CA			PC	C
16. Solve exponential and logarithmic equations and inequalities.														A2				PC	C
17. Demonstrate that the exponential and logarithmic functions are inverse functions.														A2	CA			PC	C
J. Trigonometric functions																			
1. Find linear and angular velocities																		PC	C
2. Find the values of expressions involving sine and cosine												G	a2		CA			PC	C
3. Find the values of other trigonometric functions															CA			PC	C
4. Find the values of expressions involving trigonometric functions															CA			PC	C
5. Use a calculator to find values of trigonometric functions												G			CA			PC	C
6. Find the amplitude and period for variations of the sine and cosine function															CA			PC	C
7. Use trigonometric identities to simplify and/or evaluate expressions															CA			PC	C
8. Verify trigonometric identities using various methods															CA			PC	C
9. Solve trigonometric equations															CA			PC	C
10. Find the values of the six trigonometric functions of an angle in standard position given a point on its terminal side															CA			PC	C
11. Find the exact values of the six trigonometric functions of special angles															CA			PC	C
12. Find decimal approximations for the values of the six trigonometric functions of any angle															CA			PC	C
13. Find the amplitude, period, and phase shift for a trigonometric function															CA			PC	C
14. Write equations for the trigonometric functions given the amplitude, period, and phase shift															CA			PC	C
15. Evaluate inverse trigonometric functions															CA			PC	C
16. Find principal values of inverse trigonometric functions															CA			PC	C
17. Write equations for inverses of trigonometric functions															CA			PC	C

18. Identify and use reciprocal identities, quotient identities, Pythagorean identities, and symmetry identities															CA			PC	C
19. Use the basic trigonometric identities to verify other identities															CA			PC	C
20. Use the sum and difference identities for sine, cosine, and tangent functions															CA			PC	C
21. Use the double- and half-angle identities for the sine, cosine, and tangent functions															CA			PC	C
K. Vectors and polar coordinates																			
1. Find equal, opposite, and parallel vectors																		PC	
2. Find ordered pairs that represent vectors																		PC	
3. Convert from polar coordinates to rectangular coordinates and vice versa																		PC	
4. Write the polar form of a linear equation																		PC	
5. Change complex numbers from rectangular to polar form and vice versa																		PC	
L. Sequences and series																			
1. Find the next term in a sequence by looking for a pattern.							6	PA	Aa	Ab	A1			A2	CA			PC	C
2. Find the nth term of an arithmetic sequence and find the position of a given term in an arithmetic sequence.										Ab	A1			A2				PC	C
3. Find arithmetic means.								PA	Aa	Ab	A1			A2				PC	
4. Differentiate between a sequence and a series.														A2				PC	C
5. Find the sum of an arithmetic series.																		PC	C
6. Find specific terms in an arithmetic series.										Ab	A1	G		A2				PC	C
7. Use sigma notation to denote sums.														A2				PC	C
8. Compare and contrast arithmetic and geometric sequences.														A2				PC	C
9. Find the nth term of a geometric sequence and the position of a given term in a geometric sequence.											A1			A2				PC	C
10. Find geometric means.											A1	G		A2				PC	C
11. Find the sum of a geometric series.														A2				PC	C
12. Find specific terms in a geometric series.														A2				PC	C
13. Find the limit of the terms of an infinite sequence																		PC	C
14. Find the sum of an infinite geometric series																		PC	C
15. Determine whether a series is convergent or divergent																		PC	C
16. Expand powers of binomials using Pascal's triangle and the Binomial Theorem																		PC	C
17. Find specific terms of a binomial expansion																		PC	
N. Calculus																			

1. Discuss the properties of functions to include domains, ranges, combinations, odd, even, periodicity, symmetry, asymptotes, zeros, upper and lower bounds, and intervals where the function is increasing or decreasing.																		PC	C
2. Define and apply the properties of limits of functions, including limits of a constant, sum, product, quotient, one-sided limits, limits at infinity, infinite limits, and nonexistent limits.																		PC	C
3. State the definition of continuity and determine where a function is continuous or discontinuous, including * continuity at a point; * continuity over a closed interval; * application of the Intermediate Value Theorem; and * graphical interpretation of continuity and discontinuity.																			C
4. Investigate and describe the relationship between differentiability and continuity																			C
5. State (without proof) the Mean Value Theorem for derivatives and apply it both algebraically and graphically.																			C
6. Use l'Hopital's rule to find the limit of functions whose limits yield the indeterminate forms: 0/0 and infinity/infinity																			C
7. Find the derivative of a function																			C
8. Find the slope and the equation of a line tangent to the graph of a function at a given point																			C
9. Find the critical points of the graph of a polynomial function and determine if each is a minimum, maximum, or point of inflection																			C
10. Determine continuity or discontinuity of functions																			C
11. Identify the properties of the definite integral, including the Fundamental Theorem of Calculus and the definite integral as an area and as a limit of a sum as well as the fundamental theorem: The integral from a to x of f(t)d(t) dt/dx = f(x)																			C
12. Find the indefinite integral of algebraic, exponential, logarithmic, and trigonometric functions, including special integration techniques of substitution (change of variables) and integration by parts																			C
IV. Problem Solving																			
A. Solving Story Problems using arithmetic																			
1. Ident. Problems w/ too much Info.		1	2	3	4	5	6	PA	Aa	Ab	A1	G	a2	A2	CA				
2. Choose Operations		1	2	3	4	5	6	PA	Aa	Ab	A1								
3. Give sensible answer		1	2	3	4	5	6	PA	Aa	Ab	A1		a2	A2	CA	FI	S	PC	C
4. Solve Multiple-step problems			2	3	4	5	6	PA	Aa	Ab	A1		a2	A2	CA	FI	S	PC	C
5. Identify Problem w/ too little info.			2	3	4	5	6	PA	Aa	Ab	A1		a2	A2	CA				

6. Solving Money Problems		1		3	4	5	6	PA	Aa	Ab	A1		a2	A2		FI	S	PC	
7. Recognizing Clue Words				3	4	5	6	PA	Aa	Ab	A1		a2	A2				PC	
B. Use equations to solve verbal problems							6	PA	Aa	Ab	A1		a2	A2	CA	FI		PC	C
C. Use inequalities to solve verbal problems								PA	Aa	Ab	A1		a2	A2	CA	FI		PC	C
D. Solve problems using the prediction equation														A2			S	PC	
E. Use formulas to solve verbal problems									Aa	Ab	A1	G	a2	A2	CA	FI		PC	C
F. Problem solving by drawing a model or diagram, using a chart or table									Aa	Ab	A1	G	a2	A2	CA	FI	S	PC	C
G. Using guess and check							6	PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
H. Working backwards to solve a problem							6	PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
I. Looking for patterns to solve problems							6	PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
J. Solve verbal problems using percent, interest, uniform motion									Aa	Ab	A1	G	a2	A2				PC	C
K. Use geometric figures to solve problems									Aa	Ab	A1	G	a2	A2				PC	C
L. Learn and use basic vocabulary and rules of logic, including laws of syllogism and detachment												G							
M. Understanding and demonstrate inductive and deductive reasoning												G							
N. Solve problems using quadratic equations										Ab	A1			A2	CA			PC	C
O. Solve problems involving direct, inverse, and joint variation										Ab	A1			A2	CA			PC	
P. Use rational expressions to solve problems										Ab	A1			A2	CA			PC	C
Q. Use logarithms to solve problems														A2	CA			PC	C
R. Solve problems involving right triangles using right triangle trigonometry												G			CA			PC	C
S. Solve triangles and problems using the Law of Sines & Cosines												G			CA			PC	
T. Solve problems involving permutations, circular permutations, combinations																		PC	
U. Solve problems involving simple harmonic motion																		PC	
V. Solve problems using vectors and right triangle trigonometry																		PC	
W. Apply the derivative to solve problems																			C
X. Use integration to solve problems																			C
Y. Apply the definite integral to solve problems																			C
V. Measurement/Geometry																			
A. Linear																			
1. Measuring Length/Width		1	2	3	4	5	6	PA	Aa	Ab	A1	G							
2. Recognizing Standard Measure	K5	1	2	3	4	5	6	PA	Aa	Ab	A1	G							
3. Recognizing Metric Measures		1	2	3	4	5	6	PA	Aa	Ab	A1	G							
4. Estimating Distance				3	4	5	6												
5. Converting				3	4	5	6												
6. Add/Subt. Measurements				3	4	5	6						a2	A2	CA			PC	
7. Recognizing International System (SI) Prefixes				3	4	5	6						a2	A2	CA			PC	
8. Finding Perimeter		1	2	3	4	5	6	PA	Aa	Ab	A1	G	a2	A2	CA			PC	

9. Calculating Area					4	5	6	PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
10. Finding Square measures					4	5	6	PA	Aa	Ab	A1	G	a2	A2	CA			PC	
11. Using the Distance Formula									Aa	Ab	A1	G	a2	A2	CA			PC	C
B. Weight																			
1. Understanding Standard weight		1	2	3	4	5	6							A2				PC	
2. Understanding Metric Weight				3	4	5	6							A2				PC	
3. Converting				3	4	5	6							A2				PC	
4. Add/Subt. Weights				3	4	5	6							A2				PC	
C. Capacity																			
1. Finding Volume				3	4	5	6	PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
2. Understanding Metric				3	4	5	6	PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
3. Calculating Standard				3	4	5	6	PA					a2	A2	CA			PC	C
4. Converting				3	4	5	6												
D. Temperature																			
1. Understanding Fahrenheit		1	2	3	4	5	6											PC	C
2. Understanding Celsius			2	3	4	5	6							A2				PC	C
3. Converting						5	6							A2				PC	C
E. Time																			
1. Reading a Clock	K5	1	2																
2. Adding Time		1	2	3	4	5	6												
3. Reading a Calendar	K5	1	2																
4. Converting		1	2	3	4	5	6												
F. Money																			
1. Counting Penny, nickels, dimes	K5	1	2	3	4	5													
2. Counting Quarters, Half Dollars		1	2	3	4	5													
3. Counting dollars	K5	1	2	3	4	5													
4. Budgeting																			
G. Shapes/Angles																			
1. Identify Shapes	K5	1	2	3	4	5	6	PA				G							
2. Measuring angles with a protractor												G							
3. Change radian measure to degree measure and vice versa															CA				
4. Identify coterminal angles															CA			PC	C
H. Use equations with variables to solve perimeter and area problems								PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
I. Use midpoint and distance formulas using number line and coordinate plane									Aa	Ab	A1	G	a2	A2	CA			PC	C
J. Use Pythagorean Theorem									Aa	Ab	A1	G	a2	A2	CA			PC	C
K. Identify and draw models of points, lines, and planes																			
L. Demonstrate 7 basic constructions using straight edge and compass												G	a2	A2	CA			PC	C
M. Use types of angles and pairs of angles to solve problems												G							
N. Use properties of parallel and perpendicular lines to solve problems												G							
O. Understand and practice the concepts of informal and indirect proofs												G							
P. Understand and practice the concepts of two column proofs using deductive thinking.												G							
Q. Identify and classify types of triangles												G							
1. Use triangle postulates to prove triangle congruence and similarity												G							
2. Use proportions to solve similar triangles												G							

3. Understand and solve problems using medians, altitude, and bisectors												G							
4. Use properties of right triangles to solve problems												G		A2	CA			PC	C
5. Use laws of sine and cosine to solve problems												G		A2	CA			PC	C
R. Recognize and apply properties of polygons												G			CA			PC	C
1. Work problems using various types of parallelograms and quadrilaterals												G			CA			PC	C
2. Find angle measurements and areas of regular plane figures												G			CA			PC	C
S. Identify and use properties of circles and lines intersecting circles												G			CA			PC	C
T. Use relationships and properties of angles, arcs, chords, tangents, secants, and sectors to solve problems involving circles												G			CA			PC	C
U. Identify types and parts of three-dimensional figures												G							
1. Find lateral area, total area, and volume of pyramids, cones, cylinders, and prisms												G						PC	C
2. Find area and volume of spheres												G						PC	C
VI. Graphing																			
A. Read various types of graphs																			
1. Understanding Bar Graphs		1	2	3	4	5	6												
2. Understanding Line Graphs		1	2	3	4	5	6												
3. Understanding Pictographs	K5	1	2	3	4	5	6												
4. Understanding Order pairs						5	6												
5. Understanding Circle Graphs						5	6												
B. Graph a relation, state its domain and range, and determine if the relation is a function								PA	Aa	Ab	A1		a2	A2	CA			PC	C
C. Identify equations that are linear and graph them								PA	Aa	Ab	A1	G	a2	A2	CA			PC	C
1. Use the slope and intercepts to graph a line								PA	Aa	Ab	A1		a2	A2	CA			PC	C
2. Determine if two lines are parallel, perpendicular, or neither								PA	Aa	Ab	A1		a2	A2	CA			PC	C
3. Write the equation of a line that is parallel or perpendicular to the graph of a given equation									Aa	Ab	A1	G	a2	A2	CA			PC	C
D. Identify and graph special functions (direct variation, constant, identity, absolute value, and greatest integer)											A1	G	a2	A2	CA			PC	C
E. Solve a system of equations by graphing									Aa	Ab	A1		a2	A2	CA	FI		PC	C
F. Graph a system of inequalities									Aa	Ab	A1			A2	CA	FI		PC	C
G. Graph trigonometric functions and their inverses															CA			PC	C
H. Use a graphing calculator to graph a function within a given domain and range														A2	CA			PC	C
Sketch the graph of a rational function.															CA			PC	C
Given the graph or the equation of a function, identify the domain and range of the function. Include functions with discontinuities.															CA				

Use Venn diagrams to show relationships							6					G				FI			
Use number line to show sets of numbers and to graph inequalities								PA	Aa	Ab	A1			A2					
Graph points in all quadrants of coordinate plane							6	PA	Aa	Ab	A1	G		A2				PC	
Find and graph solutions for relations and functions									Aa	Ab	A1			A2				PC	C
Identify range, domain, and inverse									Aa	Ab	A1			A2				PC	C
Solve equations in two variables by graphing									Aa	Ab	A1	G		A2				PC	C
Make and use a circle graph														A2				PC	C
Identify and draw reflections, translations, rotations, and symmetry														A2				PC	C
Create and draw three dimensional figures on three dimensional axes																			
Use scale factors for enlargement, reduction, and congruence												G							
Determine the equation of a parabola from given information about the graph														A2	CA			PC	
I. Investigate symmetry of functions using a graphing calculator														A2	CA			PC	C
J. Graph a function and its inverse														A2	CA			PC	C
K. Graph rational functions														A2	CA			PC	C
L. Graph polynomial, absolute value, and radical inequalities														A2	CA			PC	C
M. Add and subtract vectors graphically																		PC	
N. Graph polar coordinates and simple polar equations																		PC	
O. Graph conic sections														A2				PC	
P. Graph exponential functions														A2	CA			PC	C
Q. Graph logarithmic equations														A2	CA			PC	C
R. Perform graphical iteration on a linear function																		PC	
S. Plot the orbit of a complex number under iteration in the complex plane																		PC	
Determine if a point escapes or is a prisoner under iteration																		PC	
Determine if a Julia set is connected or is a dust of points																		PC	
Determine if a complex number is inside the Madelbrot set																		PC	
Determine the color of a point outside the Mandelbrot set																		PC	
VII. Probability/Statistics																			
A. Averaging 2 or more numbers				3	4	5	6	PA	Aa	Ab	A1	G	a2	A2	CA		S		
B. Find the median, mode, and mean of sets of data							6	PA	Aa	Ab	A1	G	a2	A2	CA		S		
C. Use the median, mean and mode to interpret data							6	PA	Aa	Ab	A1						S		
D. Draw a scatter plot and find the prediction equation														A2	CA		S		
E. Read and interpret data from line plots and stem-and-leaf plots							6	PA	Aa	Ab	A1			A2			S		
F. Find the range and interquartile range for a set of data								PA						A2			S		
G. Find the standard deviation for a set of data														A2			S		
H. Explore simple probability problems and odds problems								PA	Aa	Ab	A1			A2			S		

I. Use area to solve problems involving geometric probability														A2			S		
J. Solve problems using the Basic Counting Principle														A2			S		
K. Solve problems involving permutations and combinations									Aa	Ab	A1			A2			S		