TEXAS ESSENTIAL KNOWLEDGE AND SKILLS (TEKS) FOR

Math

Objective: Number, Operations, & Quantitative Reasoning

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Numbers and Place Value:															
Describe sizes of sets of objects	I	D/ M													
Uses objects to represent quantities through 9	I	D													
Use numbers for objects through 20	I	D	R												
Compare and order whole numbers to 99	I	D	D/M	T											
Create sets of tens and ones	I	D	D/M	T											
Describe value of coins	I	D	D/M	T		R									
Read and write numbers to 99		I	D/M	T											
Use number models, read numbers, and record with symbols to compare whole numbers through 999			I/D	M/T											
Read and write numbers through 999,999			I	D/M /T	D	M/R									
Compare and order whole numbers through 9,999				I/D/ M	D	M/R									
Determine value of a collection of money		I/D	D	M/T	R	R									
Read, write, compare and order whole numbers through millions				I/D	M/T	R// T									

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Read, write, compare, and order decimals through hundredths with concrete models				I	D/M/T	D/M/T									
Read, write, compare and order whole numbers through billions					I/D	D/M/T	R								
Read, write, and compare decimals through thousandths					I	D/M/T	R	R							
Ordering of Events:															
Describe position in a sequence of events			R			R									
Name ordinal positions	I	D	R	T		R									
Fractions:															
Separate a whole into equal parts	I	D/M	R	R/T		R									
Describe equal parts	I	M	R			R									
Explain half of a whole	I	M	R		R										
Describe parts of a set	I	D	D/M	R/T	R	R									
Name fractional parts of whole objects			I/D	M/T	R	R/D/M									
Name fractional parts of a set of objects		I	/D	M/T	R	R/D/M									
Construct concrete fractional models		I	D/M		R	R/D/M									
Compare fractions with concrete models	I	D	D	D/M/T	R/T	R									
Name fractional parts of a whole or set using symbols		I	D	D/M/T	R/T	R									
Construct models of equivalent fractions		I	D	M/T	R/T	R/D/M									
Generate equivalent fractions using models		I	D	M/T	R/T	R/D/M									

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Model fractions greater than 1		I	D	M/T		D/M									
Compare and order fractions using concrete and picture models			I	D	M/T	D/M									
Relate fractions and decimals for tenths and hundredths using models				I	D	D									
Generate equivalent fractions					I	D/M/T	R	R							
Compare fractions in a variety of ways				I	D	D/M/T	R	R							
Relate decimals to fractions to thousandths						I/D/M/T	R	R							
Compare and order non-negative rationals					I	D	M/T	R							
Generate equivalent forms of rationals						I/D	D/M/T	R							
Use integers to represent situations					I	D	D/M/T	R							
Write prime factorizations using exponents						I	D/M/T	R							
Identify factors and multiples					I	D/T	D/M/T	R							
Rationals:															
Compare and order integers and positive rationals							I/D	R/M/T							
Convert between fractions, decimals, whole numbers, and percents						I/D	D	R/M/T							
Represent squares and square roots with models						I	D/M	D/M/T							
Reals:															
Compare and order rationals						I/D	D	D	M/T						

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Use appropriate form of a rational to solve real life problems							I/D	D	M/T						
Approximate irrational numbers							I/D	D	M/T						
Express numbers in scientific notation							I/D	D	M/T						
Modeling Operations:															
Model addition and subtraction with objects	I	D	M	T											
Model and write addition and subtraction sentences		I/D	M	R/T	R/T	R/T									
Model, create, and describe multiplication situations		I	D	M/T	R/T	R/M									
Model, create and describe division situations		I	D	M/T	R/T	R/M									
Use models for division and record solutions				I/D	D/M	T									
Represent multiplication and division			I/D	D/M /T	T	R/M									
Model factors and products					I/D	D/M /R									
Model adding and subtracting fractions with like denominators					I/D	D/M /T	D/M /T								
Model addition and subtraction situations involving fractions and decimals					I	D/M /T	D/M /T	D/M /T							
Solving Problems:															
Learn and apply addition facts – sums to 18	I	D	D/M	T	R	R									
Determine value of a collection of coins	I	D	D/M	T	R	R									

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Add and subtract with two digit numbers		I	D	M/T	R	R									
Add and subtract three digit numbers through 999			I	D/M/T	R/T	R									
Add and subtract decimals to hundredths					I/D	D/R									
Add and subtract whole numbers, fractions, and decimals to solve problems					I	D/M/T	D/M/T	R	R	R					
Add, subtract, multiply and divide to solve problems involving fractions and decimals						I/D	D/M	R/T	R	R					
Learn and apply multiplication facts			I	D/M/T	R	R	R	R	R	R					
Multiply using one-digit multiplier				I/D/M/T	R	R									
Multiply with two-digit multiplier					I/D/M/T	D/M/T	R/T	R							
Divide with one-digit divisor				I	D/M/T	R/T									
Multiply & divide whole numbers to solve problems					I	D/T	R								
Identify prime and common factors						I/D/T	D/M/T	R	R	R					
Solve ratio and rate problems with multiplication and division						I	D/M/T	D/M	D/M	D/M					
Add, subtract, multiply and divide integers and connect to algorithms						I	D	D/M/T	D/M	D/M					
Find unit rates and ratios in proportional relationships						I	D	D/M/T	D/M/T	D/M/T					
Use order of operations and exponents						I/D	D	D/M/T	D/M/T	R	R	R	R	R	
Select appropriate operations and justify selection						I/D	D	D/M/T	D/M/T	R					

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Add, subtract, multiply and divide rationals to solve problems							I	D/M	D/M/T	R					
Determine reasonableness of solutions	I	D	D	T	T	T	D/M/T	D/M/T	R/T	R		R	R	R	R
Evaluate solutions for reasonableness		I/D	D	D	D	D/T	D/M/T	D	R/T	R/T		R/T	R/T	R/T	R/T
Use unit rate to represent proportional relationships							I/D	D/M	D/M/T	D/M/T					
Use symbols to represent unknowns and variables						I	D	D	R/M/T	R/M/T					
Find specific function values, simplify polynomial expressions, transform and solve equations, and factor as necessary						I	D	D/M	R/M/T	R/M/T					
Use commutative, associative, and distributive properties in problem situations								I	D	D/M/T					
Solve equations, inequalities and systems using algebraic methods (quadratic, square root, rational, exponential, logarithmic)									I	D					
Interpret and analyze solutions to quadratic equations including the use of complex numbers and discriminant															
Use operations on functions including function compositions															
Use and apply sequences an series; investigate series using limits															

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Compare and analyze various problem solving methods, use multiple approaches to solve problems, defend the methods used and justify the reasonableness of results						D									
Solving problems involving personal taxes															
Use models of, analyze, and compare insurance, investment, and credit options															
Estimation:															
Round to 10 or 100		I	D	D/M/T	R/T	R	R	R	R	R					
Estimate sums and differences		I	D	D/M/T	R/T	D/M	R	R	R	R					
Round to 1000				I/D	D/M/T	R/M	R	R	R	R					
Estimate products and quotients				I	D/M/T	R	R	R	R	R					
Round whole numbers and decimals to tenths					I	D/M/T	D/M	R	R	R					
Estimate to solve problems			I	D	D	D/M/T	D/T	D	R	R					
Estimate solutions			I	D	D	D	D/M/T	D	R	R					

Objective: Patterns, Relationships, and Algebraic Thinking

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Patterns and Generalizations:															
Identify, Extend and Create Patterns	I	D	R			R	R	R							
Find patterns (like odd and even)		I/D	M			R	R	R	R						
Use place value to compare and order whole numbers			M			D	R	R	R						
Identify fact families for addition and subtraction		I	D/M			R	R	R	R						
Find patterns in numbers		I/D	D/M			R	R	R	R						
Use place value to compare and order numbers through 99		I	D/M			R			R						
Use patterns to remember addition facts		I	D/M												
Solve subtraction problems using fact families		I	D			R	R	R	R						
Make predictions and solve problems using whole numbers and geometric patterns			D	D	M/T	D/M									
Identify patterns in multiplication facts			I	D	M/T	D/M	R	R							
Identify fact families for multiplication and division			I	D	M/T	R	R	R							
Use patterns to remember multiplication facts			I	D	M/T	R									
Solve division problems using fact families					M/T	R									
Multiply by 10 and 100			I/D	R/M	T	R									

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Determine possible combinations			I	D	D	D/M/T	R								
Find patterns and make generalizations			I	D	D	D/M/T	R	R							
Identify prime and composite numbers						D/M/T	R	R							
Proportional Reasoning:															
Use ratios to describe proportional situations						I	D/M/T	D/M	R						
Represent ratios and percents with models, fractions and decimals						I/D	D/M/T	D/M	R						
Use ratios to make predictions							I/D/M/T	D/M	R						
Estimate and solve application problems involving percent						I/D	D	D/M	R						
Estimate and solve application problems involving proportional relationships							I/D	R/M/T	R						
Compare and contrast proportional and non-proportional relationships							I/D	D/M	R						
Estimate and solve applications of percents and proportional relationships							I/D	D/M	R						
Expressing Relationships:															
Predict what comes next	I	D	R			R									
Count to 100 by ones	I	D	R												
Identify, describe and extend patterns to solve problems		I	M/R			R	R	R							

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Skip count by twos, fives and tens	I	D	R			R									
Generate ordered pairs			I	D	D	D/M/T	R	R							
Identify and extend a list of ordered pairs						R	R	R							
Solve problems and make predictions using patterns		I	D			D/M	D/M	R							
Expressing Relationships and Making Predictions:															
Generate tables of ordered pairs				I		D									
Identify and extend patterns of ordered pairs				I											
Describe relationship between two sets of data					I/D	D									
Select and use diagrams and number sentences to represent real-life situations			I		D/M/T	R/T	R	R							
Use table and symbols to represent proportional and other relationships						I/D	D/M/T	D							
Generate formulas (perimeter, area, volume) from data			I			D/M/T	D/M/T	D/M/T							
Generate formulas involving conversions, perimeter, area, circumference, volume, scaling						I/D	D	D/M/T							
Graph data to demonstrate relationships			I			D/M	D/M	R/T							
Describe relationship between terms in a sequence and their position															

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Generate different models for the same data															
Patterns, Relationships and Making Predictions:															
Represent, interpret and make inferences from functional relationships						I/D				I					
Represent relationships among quantities situations in multiple ways, including using concrete models, diagrams, and verbal descriptions										I					
Look for patterns and represent generalizations algebraically										I					
Determine whether situations can be represented by linear functions										R					
Develop slope as a rate of change; relate, direct variation to linear functions and solve problems involving proportional change										I					
Use patterns to generate and apply laws of exponents										I					
Use concrete models and algebraic methods to analyze data and represent situations involving inverse variation and exponential growth and decay										I					

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Analyze situations modeled by functions (quadratic, square root, rational, exponential) to solve problems												√			
Use direct and inverse variation models												√			
Formulate and test conjectures about geometric properties using constructions, explorations, patterns, and concrete models													**I/D/M /T**		
Make and verify conjectures about geometric properties using coordinate, transformational, or axiomatic approaches													**I/D/M /T**		
Select an appropriate representation (concrete, pictorial, graphical, verbal, or symbolic) to solve problems													**R/T**		
Use slopes and equations of lines to investigate geometric relationships													**R/T**		
Use proportional relationships to find areas of sectors and arc lengths; justify right triangle ratios, trigonometric ratios, and Pythagorean triples; describe and apply the effect on perimeter, area and volume when dimensions are changed; solve problems involving similar figures													**I/D/M /T**		

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1		Alg 2	Geo	Pre Cal	Cal
Use similarity and congruence properties to explore and justify conjectures													M/T		
Equations:															
Formulate equations from problem situations			I	D	D	D	D	D/M/T	R/T						
Solve equations with models and use symbols to record			I	D	D	D	D	D/M/T	R						
Formulate problems from equations						I/D	D	D/M/T	R						
Estimate, find, and justify solutions to application problems						I	D	D/M/T	R						
Use an algebraic expression to find any term in a sequence						I	D	D	D						
Equations and Functions:															
Formulate equations, inequalities, or systems to solve problems modeled by linear functions										M					
Represent relationships among quantities in multiple ways, including equations and inequalities										I					
For given situations, determine the reasonableness of and interpret graphs, domain and range values, and solutions to equations, inequalities or systems										D					

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Translate among and uses multiple forms of linear functions, including algebraic and verbal										D					
Investigate methods and solve linear equations, inequalities and systems using concrete models, graphs, tables, and appropriate algebraic methods										I					
Solve quadratic equations using concrete models, tables, graphs, and algebraic methods										I					
Use concrete models and algebraic methods to analyze data and represent situations involving inverse variation and exponential growth and decay										I					
For given situations determine reasonableness of and interpret domain and range values and solutions to equations, inequalities and systems												√			
Formulate equations, inequalities, or systems to solve problems modeled by functions												√			
Solve equations, inequalities and systems modeled by functions using graphs, tables, and appropriate algebraic methods, including matrices												√			

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Relate algebraic and verbal representations of quadratic, square root, and rational functions to other representations												√			
Compare and translate between algebraic and graphical solutions of quadratic equations												√			
Use transformational geometry to make and verify conjectures about geometric properties													I/D/M/T		
Use slopes and equations of lines to investigate geometric relationships													R/T		
Equation and Function Models:															
Use functions and their properties to model, analyze, solve problems, and make predictions														√	
Use regression to determine functions to model situations														√	
Use trigonometry to solve problems from physical situations														√	
Use sequences and series to represent, analyze, and solve problems														√	
Use parametric functions to simulate motion problems and convert between and parametric and rectangular forms to graph														√	

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Compare and analyze various problem solving methods, use multiple approaches to solve problems, defend the methods used, and justify the reasonableness of results											√				
Use regression methods available through technology to describe, select, and use models for data											√				
Use rates, linear functions, and direct variation to solve problems involving personal finance											√				
Use geometric models available through technology to model growth and decay											√				
Use trigonometric ratios and functions available through technology to calculate distances and model periodic motion											√				
Use direct in inverse variation to describe physical laws											√				
Attributes of Functions:															
Describe independent and dependent quantities for functions and identify reasonable domain and range for given situations										I					
Identify and sketch parent functions ($y=x$, $y=x^2$)										I					

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Interpret the meaning of slope and intercepts using data, symbolic representation, or graphs; determine slope and intercepts of linear functions from graphs, tables, and algebraic representation; and predict the effect of changing slope and y-intercept on graphs and applied situations									**I**	**D**					
Graph and write equations of lines given points, slopes, and/ or intercepts									**I**	**D**					
Investigate, describe, and predict the effects of changes in a and c on $y=ax^2+c$										**I**					
Analyze graphs and quadratic functions in problem situations and relate solutions to quadratic equations to the roots of their functions									**I**	**D**					
Identify mathematical domain and range, including limitations and asymptotic behavior									**I**			**R/T**			
Identify and sketch parent functions; connect y =and f (x) = notations; and identify conic sections from equations												**R/T**			

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Describe graphs using parent functions (linear, quadratic, square root, exponential, and logarithmic) and quotients (rational); and predict the effects of parameter changes												R/T			
Recognize inverse relationships of functions												D			
Determines a quadratic function from its roots or graph												√			
Develops logarithms using the relationship between exponential functions and their inverses												√			
Describe parent functions symbolically and graphically and apply basic transformations to parent functions														√	
Connect symbolic representations and graphs of functions using characteristics of functions including domain and range, significant points, continuity, end behavior, vertical and horizontal asymptotes, limits, and symmetry														√	
Perform operations on and find inverses of functions, and describe procedures and results in various ways, including symbolically and verbally														√	
Investigate identities														√	

graphically and verify them symbolically														
Describe limits of sequences and apply their properties to investigate convergent and divergent series													√	

Objective: Measurement

The student is expected to:	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Alg 1**	**Stat**	**Alg 2**	**Geo**	**Pre Cal**	**Cal**
Measuring:															
Compare and order object by length, capacity, or weight			**M**												
Identify objects >, <, = a given object			**M**			**R**									
Estimate and measure using nonstandard units			**I/M**			**R**									
Relate unit to size of object			**D**			**R**									
Identify models for standard units			**D/M**			**R**									
Measure using standard units			**M**			**R**		**R**	**R**						
Estimate and measure lengths using metric and customary units			**I/D**	**D**		**R**		**R**	**R**						
Find perimeter		**I**	**D/M**	**D/T**	**R**	**R/T**		**R**	**R**						
Determine area using concrete models		**I**	**D/M**	**D/T**		**R/T**		**R**	**R**						
Estimate and measure weight using metric and customary units			**I**	**D**	**D**	**R/T**									
Estimate and measure capacity using metric and customary units			**I**	**D**	**D**	**R/T**									

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Measure volume using concrete models						I/D/T									
Estimate volume						I/DT									
Measure angles						I		R	R						
Time and Temperature:															
Compare temperatures			M			R									
Compare times			M			R									
Sequence events			R			R									
Read a calendar			M			R									
Recognize reasonable temperatures			M												
Describe time on a clock (hours, half hours)			M												
Order events by length of time			M												
Describe length of an activity			D			R									
Read thermometer			M			R									
Describe time on a clock (hours, minutes)			M			R									
Tell and write time on digital and traditional clocks	I	D	D/M	R/T	R										
Measure temperature	I	D	M	R/T	R	R									
Solving Problems Using Measurement:															
Measure length, area, temperature, and time to solve problems			I	R	R	R/T									

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Measure length, weight, capacity, area, temperature, and time			I			R/T									
Describe numerical relationships between units of measure						D/T									
Estimate measures and evaluate reasonableness			I			D		R	R						
Select and use appropriate units, tools, and formulas to solve problems						I/D/T		R	R						
Convert between measures in the same system			I			D/T		R	R						
Estimate measurements and solve problems with length, area, and volume								R/T	R						
Find surface area and volume using concrete models and nets						I/D		D	M/T						
Connect models to formulas								D	M/T						
Estimate and use formulas for surface area and volume						I/D		D/M	M/T						
Use Pythagorean Theorem								I	D/M	T					
Use proportional relationships to find missing measures								I	D/M/T						
Extend and use measurement concepts of area, perimeter, and volume to polygons, circles, and three-dimensional solids; develop, use, and extend the Pythagorean Theorem								I/D	D/M/T				R/T		
Describe and apply the effect on perimeter, area, and volume when dimensions are changed								D	D/M/T				R/T		

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Proportional Reasoning in Measurement:															
Describe effect on perimeter and area when dimensions are changed								**I/D**	**D/M/T**						
Describe effect on volume when dimensions are changed								**I/D**	**D/M/T**						

Objective: Geometry and Spatial Reasoning

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Geometric Language:															
Describe one object in relation to another using informal language		I/D	M												
Place objects in a given position		I/D	M												
Describe and identify objects using informal language		I/D	M			R									
Compare objects	I	D	M			R									
Sort objects	I	D	M												
Describe and compare solids			M			R									
Recognize shapes	I	D	M			R									
Describe, identify and compare shapes	I	D	M			R									
Sort by attributes using informal language		I/D	M			R									
Identify shapes and solids		I/D	D/ M			R									
Combine shapes		I	M												
Identify attributes of shapes and solids		I	D/ M			R/T									
Compare shapes using attributes		I	D/ M			R									
Separate geometric shapes			D/ M												
Use formal vocabulary to name, describe and compare shapes and solids	I	D	D	M/ T	D	R/M /T	R	R	R						

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Identify right, acute, and obtuse angles			I		D	R	R	R	R						
Identify parallel and perpendicular lines			I		D	R/T	R	R	R						
Describe shapes and solids with vertices, edges, and faces					D	R/T	R	R	R						
Identify critical attributes of shapes and solids						D/M/T	R	R	R						
Use critical attributes to define shapes and solids						D/M/T	R	R	R						
Classify angles						I/D		R	R						
Identify angle relationships in triangles and quadrilaterals						I/D	√	R	R						
Describe radius, diameter, and circumference relationships						I/D	√	R	R						
Classify angles as complimentary and supplementary							I/D	M/T	R						
Classify shapes						R		M/T	R						
Classify solids						R		M/T	R						
Define similarity						I/D	D	M/T	R						
Graphing:															
Locate and name whole numbers on a number line	I	D	M			R									
Locate and name whole numbers and fractions on a number line			I			R		R	R						
Locate and name whole numbers, fractions, and decimals on a number line					I/D	D		R	R						

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Locate and name points using ordered pairs of whole numbers			I			D/T		R	R						
Locate and name points using ordered pairs of non-negative rationals								R	R						
Locate and name points using ordered pairs of integers on a coordinate plane								M/T	R						
Graph translations								M/T							
Graphing and Transformations:															
Using dilations to generate similar shapes								D	M/T						
Graph dilations, reflections, and translations								D	M/T						
Locate and name points using ordered pairs of rationals on a coordinate plane								D	M/T						
Transformations:															
Identify congruent shapes	I	D	M	T	R	R	R	R	R						
Create shapes with lines of symmetry	I	D	D	M/T	R	R	R	R	R						
Identify lines of symmetry	I	D	M	T	R	R	R	R	R						
Demonstrate translations, reflections, and rotations					I/D	D/M/T		R	R						
Verify congruence					I/D	R		R	R						
Verify symmetry					I/D	R		R	R						
Sketch translations, rotations, and reflections						D/M/T		R	R						
Describe transformations						D/M/T		R	R						
Investigate, describe, and predict the effects of changes in m and b on y=mx+b									I	D					

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Investigate, describe and predict the effect of change in a and c on $y=ax^2 + c$										**I**					
Describe graphs using parent functions (linear, quadratic, square root, exponential and logarithmic) and quotients (rational); and predict the effects of parameter changes												√			
Recognize inverse relationships of functions									**I**			√			
Sketch graphs of conics by relating parameter changes in the equation to changes in the graph												√			
Use transformations and constructions to make and verify conjectures about geometric properties													**M/T**		
Use properties of transformations and their compositions to make connections between mathematics and the real world													**M/T**		
Use similarity and congruence transformations to explore and justify conjectures													**M/T**		
Apply basic transformations ($a \cdot f(x)$, $f(x) + d$, $f(x-c)$, $f(b \cdot x)$, $\lvert f(x)\rvert$, $f(\lvert x\rvert)$), perform operations, and find inverses of functions														√	

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Geometric Structure:															
Develop an awareness of the structure of a mathematical system, recognize the historical development of geometric systems, and compare and contrast Euclidean and non-Euclidean geometries													**D**		
Formulate and test conjectures about geometric properties using constructions, explorations, patterns, and concrete models													**I/D/M/T**		
Use axiomatics to make and verify conjectures about geometric properties													**M/T**		
Construct and justify statements about geometric figures and their properties, including triangle congruence relationships, and determine if converses are true or false													**I/D/M/T**		
Demonstrate what it means to prove mathematically that statements are true													**I**		
Use inductive and deductive reasoning to formulate conjectures and prove statements													**I**		
Geometric Models:															
Sketch solids from all views								**M/T**							
Make nets of solids						**I**		**M/T**	**R**						
Use geometric concepts and properties to solve problems						**D**		**M/T**	**R**						

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Draw solids from different perspectives								**I/D**	**R/M /T**						
Use geometric concepts and properties to solve problems								**D**	**R/M /T**						
Demonstrate Pythagorean Theorem								**I**	**D/M /T**						
Geometric Models and Graphing:															
Represent, interpret, and make inferences form functional relationships										**I**					
Represent relationships among quantities in multiple ways, including graphs and tables										**I**					
Identify and sketch parent functions ($y=x$, $y=x^2$)										**I**					
Interpret situations or create situations for graphs										**I**					
Translate among and uses multiple forms of linear functions, including graphs										**I**					
Use graphs to interpret the meaning of slope and intercepts of linear functions, determine slope and intercepts, and predict the effect of changing slope and y-intercept in applied situations										**D**					
Graph and write equations of lines given points, slopes, and / or intercepts										**D**					
Investigate methods and solve linear equations, inequalities, and systems, including using concrete models and graphs										**I**					

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Analyze graphs of quadratic functions in problem situations and relate solutions to quadratic equations to the roots of their functions										I					
Solve quadratic equations, including using concrete models and graphs										I					
Use graphs to analyze data and represent situations involving inverse variation and exponential growth and decay										I					
Collect, record, organize data; make scatterplots and describe with a parent function, interpret results and make predications to model and solve problems												√			
Solve equations, inequalities, and systems modeled by functions using graphs and tables												√			
Identify and sketch parent functions												√			
Describe a conic sections as the intersection of a plane and a cone; identify and sketch conics; identify symmetries from graphs												√			
Relate graphical representations of quadratic, square root, and rational functions to other representations												√			
Determine quadratic function (s) from roots or a graph												√			

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Compare and translate between algebraic and graphical solutions of quadratic equations												√			
Use coordinates and constructions to make and verify conjectures about geometric properties													I/D/M/T		
Select an appropriate representation (concrete, pictorial, graphical, verbal, or symbolic) to solve problems													R/T		
Analyze and solve problems using the relationship between three-dimensional objects and related two-dimensional representations (cross sections and other slices, nets, and perspective views)													I/D/M/T		
Use coordinates to represent geometric figures, develop and use formulas, and use analytic geometry to investigate geometric relationships													I		
Develop, extend, and use the Pythagorean Theorem													M/T		
Analyze the characteristics of three-dimensional figures and their parts													I/D/M/T		
Describe parent functions symbolically and graphically														√	

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Connect symbolic representations and graphs of functions using characteristics of functions including domain and range, significant points, continuity, end behavior, vertical and horizontal asymptotes, limits, and symmetry														√	
Perform operations on and find inverses of functions, and describe procedures and results in various ways, including graphically														√	
Investigate identities graphically and verify them symbolically														√	
Use conic sections and their properties to model motion or describe physical phenomena														√	
Convert between parametric and rectangular forms of functions and equations to graph them														√	
Use appropriate geometric models to model situations, including trigonometry, area formulas, parametric functions, conic sections, and vectors														√	

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Geometric Models and Transformations:															
Compare and analyze various problem solving methods, use multiple approaches to solve problems, defend the methods used, and justify the reasonableness of results											√		**R/T**		
Use rates, linear functions, and direct variation to solve problems involving personal finance											√		**R/T**		
Use geometric models available through technology to model growth and decay											√		**D**		
Use trigonometric ratios and functions available through technology to calculate distances and model periodic motion											√				
Use direct and inverse variation to describe physical laws											√				
Use geometric transformations, symmetry, and perspective drawings to describe mathematical patterns and structure in art and architecture											√		**D/T**		
Use geometric transformations, proportions, and periodic motion to describe mathematical patterns and structure in music											√				

Objective: Probability and Statistics

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Displaying and Interpreting Data:															
Construct real and picture graphs	**I**	**D**	**R**			**R**		**R**	**R**						
Use graphs to answer questions	**I**	**D**	**R**			**R**		**R**	**R**						
Collect and sort data		**I**	**R**			**R**		**R**	**R**						
Construct graphs (real, picture, and bar)		**I/D**	**M**			**R**		**R**	**R**						
Construct picture and bar graphs	**I**	**D**	**M**	**T**		**R**		**R**	**R**						
Draw conclusions from graphs		**I**	**D**	**M/T**		**R/T**		**R**	**R**						
Collect, organize, record, and display data in picture and bar graphs			**I**		**D/M**	**R/T**		**R**	**R**						
Interpret information from graphs			**I**		**D/M**	**R/T**		**R**	**R**						
Interpret bar graphs			**I**		**D/M**	**R/T**		**R**	**R**						
Construct line graphs			**I**			**D/T**		**R**	**R**						
Describe characteristics of data						**D/T**		**R**	**R**						
Graph data using the appropriate representation						**D/T**		**R**	**R**						
Draw and compare different graphs of the same data						**D**		**R**	**R**						
Use median, mode, and range						**I/D/T**		**R**	**R**						
Sketch circle graphs						**D**		**R**							

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Collect, organize, display, interpret data to solve problems						D		R							
Select, use, and justify appropriate representations of collected data						D/T		M/T	R						
Make inferences and convincing arguments based on data								M/T	R						
Describe data with mean, median, model, and range						I	D	M/T	R						
Use and justify appropriate measures to describe a set of data								M/T	R						
Select appropriate measure of central tendency to describe data								D							
Make predictions from scatterplots								D	M/T						
Construct circle graphs, bar graphs, and histograms								D	M/T						
Evaluate methods of sampling								D							
Recognize misuses of data analysis and evaluate predictions								D							
Gather and record data, or use data sets, to determine, interpret, and make inferences from functional (systematic) relationships between quantities								D	D	D					
Represent relationships among quantities in multiple ways, including graphs and tables								D	D	D					

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Collect and organize data, make and interpret scatterplots, and model , predict, and make decisions and critical judgments to solve problems									**I**	**D**					
Translate among and uses multiple forms of linear functions, including tables and data									**I**	**D**					
Use tables of data to interpret the meaning of slope and intercepts of linear functions, determine slope and intercepts, and predict the effect of changing slope and y-intercept in applied situations									**I**	**D**					
Investigate methods and solve linear equations, inequalities, and systems, including using concrete models and tables									**I**	**D**					
Solve quadratic equations, including using concrete models and tables									**I**	**D**					
Use tables to analyze data and represent situations involving inverse variation and exponential growth and decay										**I**					
Collect, record, organize data; make scatterplots and describe with a parent function, interpret results and make predications to model and solve problems												√			

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Solve equations, inequalities, and systems modeled by functions using graphs and tables												√			
Relate tabular representations of quadratic, square root, and rational functions to other representations												√			
Formulate and test conjectures about geometric properties using constructions, explorations, patterns, and concrete models													**I/D/M/T**		
Determine domain and range of functions using tables														√	
Perform operations on and find inverses of functions, and describe procedures and results in various ways, including numerically														√	
Use regression to model functions and use functions to model real-life data														√	
Compare and analyze various problem solving methods, use multiple approaches to solve problems, defend the methods used, and justify the reasonableness of results											√				

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Analyze and interpret information from various graphs, draw conclusions from data, and determine the validity of data arguments											√				
Analyze numerical data using measures of central tendency, variability, and correlation in order to make inferences, including decisions about banking											√				
Use regression methods available through technology to describe, select, and use models for data											√				
Formulate a meaningful question; determine, gather, and analyze the data; draw reasonable conclusions; and communicate the method, analysis, and conclusions through various media											√				
Determine the appropriateness of a model for making predictions form a given set of data											√				
Probability:															
Identify events as certain or impossible		I/D	R					R							
Describe an event as more likely or less likely		I/D	M			R		R							
Describe events as more likely, less likely, or equally likely			I			R		R							
List possible outcomes			I		D	R		R	R						

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Use a pair of numbers to compare favorable outcomes to possible outcomes						R		R	R						
Use fractions to determine results of an experiment						D/T		R	R						
Use experimental results to make predictions						D/T		R	R						
Construct sample spaces								R							
Find probability of a simple event and its complement								R							
Construct sample spaces for compound events								M/T							
Find probability of compound events through experimentation								M/T							
Find probability of compound events								I/D	M/T						
Use probability to make predictions						I	D	D	M/T						
Use models to simulate an event								I/D	M/T						
Apply sequences and series to solve problems including sums and binomial expansion														√	
Compare theoretical and empirical probability and use experiments to determine the reasonableness of theoretical probability models											√				

Objective: Mathematical Processes and Tools for Problem Solving

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Solve problems connected to everyday experiences, investigations in other disciplines															
Identify and apply mathematics to everyday experiences, with other disciplines, and with other mathematical topics			**I**			**D/R**									
Use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating for reasonableness			**I**			**D/R**									
Select or develop and appropriate problem-solving strategy (including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem)			**I**			**D**									

The student is expected to:	K	1	2	3	4	5	6	7	8	Alg 1	Stat	Alg 2	Geo	Pre Cal	Cal
Informal and mathematical language, representations, and models															
Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical or algebraic mathematical models.						**R**									
Logical reasoning to make conjectures and verify conclusions:															
Make conjectures from patterns or sets of examples and nonexamples.															
Validate conclusions using mathematical properties and relationships.															