

COMPONENT	OBJECTIVES	COMPETENCY
I Geometry	<ol style="list-style-type: none"> 1. Relate slope to a rate of change and to trigonometric functions. (MA.A.2.4.1) 2. Describe the effects of translation, homothety, reflection and rotation on parallelism, barycenters, distances, angles and areas. (MA.C.2.4.1) 3. Apply transformations to derive properties of geometric configurations. (MA.C.1.4.1) 4. Apply transformations and vectors to derive properties of trigonometric functions. 5. Interpret functions graphically and analytically. (MA.D.2.4.1) 6. Determine the value of a derivative at a given point. 7. Solve problems involving loci in the plane and in space. 8. Apply geometric and trigonometric ideas to determine angle and lengths in geometric figures in 2 or 3 dimensions. (MA.C.2.4.2) 	<p>A. Use synthetic, transformational, coordinate and vector methods to justify conjectures involving properties of geometric figures and trigonometric functions.</p>
II Algebra	<ol style="list-style-type: none"> 1. Describe graphs of rational, algebraic and transcendental functions. (MA.D.2.4.1) 2. Solve problems involving limits of functions. (MA.A.2.4.1) 3. Solve problems involving sequences and series. (MA.A.5.4.1)(MA.D.2.4.1) 4. Solve problems involving derivatives of functions. (MA.A.2.4.1) 	<p>A. Solve problems involving multiple representation of functions and their limits.</p>

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<p>III Statistics and Probability</p>	<ol style="list-style-type: none"> 5. Solve problems involving integrals of functions, using technology. (MA.5.4.1)(MA.D.2.4.1) 6. Relate complex numbers to exponential functions using Euler's formulas and De Moivre's theorem. 7. Use the concept of bound to determine rational approximations of real numbers. (MA.B.3.4.1) 8. Use bounds to determine convergence or divergence of sequences or series. (MA.A.5.4.1) 9. Use theory of equations to find solutions of polynomial equations. 1. Solve problems involving statistical analysis. (MA.E.1.4.3) 2. Give statistical descriptions of a population. (MA.E.1.4.3) 3. Develop formulas for cardinality of sets. (MA.A.5.4.1) 4. Develop the meaning of combinations and permutation coefficients in the context of real-life problems. (MA.E.2.4.1) 5. Expand binomials over the set of complex numbers. (MA.A.2.4.3) 6. Solve problems involving conditional probability. (MA.E.2.4.1) 	<p>A. Describe mathematical situations using combinatorics, statistics and probability.</p>

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<p>IV Logic and Reasoning</p>	<ol style="list-style-type: none"> 7. Solve problems involving Bernoulli trials, random variables and expectation. 8. Develop and apply the binomial distribution. 9. Use variance and standard deviations to solve problems involving statistical reasoning. (MA.E.3.4.2) <ol style="list-style-type: none"> 1. Apply field properties to justify solutions of equations. (MA.A.3.4.2) 2. Prove simple statements involving definitions of limits. (MA.A.2.4.1) 3. Write proofs to justify algebraic statements. (MA.A.3.4.2) 4. Understand the nature of a deductive systems and the effects of changing axioms on the system. (MA.A.2.4.2)(MA.A.2.4.3) 	<p>A. Write proofs to communicate results of mathematical discoveries.</p>