

COMPONENT	OBJECTIVES	COMPETENCY
<p>I Geometry</p>	<ol style="list-style-type: none"> 1. Relate slope to a rate of change and to trigonometric functions. (MA.A.2.4.1) 2. Develop the relationship between area and circumference of a circle to its radius. 3. Use regular polygons to approximate the area and perimeter of a circle. (MA.A.2.4.1) 4. Relate congruence to similarity of figures. (MA.B.1.4.2) 5. Understand the meaning of a derivative at a given point. (MA.A.2.4.1) 6. Approximate the value of a derivative at a given point. (MA.A.3.4.3)(MA.B.1.4.3) 7. Develop and justify constructions with straight-edge and compass. 8. Determine locus descriptions of various geometric figures, using a variety of methods. (MA.C.1.4.1) 9. Develop properties of functions graphically and analytically. (MA.D.1.4.2) 10. Solve problems involving transformations of functions. (MA.D.1.4.2) 	<p>A. Use synthetic, transformational, coordinate and vector methods to justify conjectures involving properties of geometric figures and their measurement.</p>

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<p>II Algebra</p>	<ol style="list-style-type: none"> 1. Describe graphs of rational, algebraic and transcendental functions. (MA.D.2.4.1) 2. Develop general laws of exponents and logarithms. 3. Approximate data by exponential functions. (MA.E.1.4.1) 4. Relate the derivative of an exponential function to its graph. 5. Solve problems involving matrix operations, using technology. (MA.D.2.4.1) 6. Use properties of matrices to solve linear systems. (MA.D.2.4.1) 7. Relate matrices to solutions of systems of equations. (MA.D.2.4.2) 8. Solve problems involving vector operations, using technology. 9. Interpret geometric properties in terms of vectors. (MA.C.3.4.1) 10. Apply vector properties to study of similar figures. (MA.C.3.4.1) 11. Solve linear programming problems. 	<p>A. Solve problems involving multiple representation of functions and their properties.</p>

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<p>III Statistics and Probability</p>	<ol style="list-style-type: none"> 1. Develop principles for calculating probabilities. (MA.E.2.4.1) 2. Give statistical descriptions of a population. (MA.E.1.4.3) 3. Develop systematic methods of counting in complex situations. (MA.E.2.4.1) 4. Develop the meaning of combinations and permutation coefficients in the context of real-life problems. 5. Understand the distinction between combinations and permutations. (MA.E.2.4.1) 6. Develop principles for computing combinations and permutations. (MA.E.2.4.1) 7. Understand and use Pascal's triangle. 8. Develop and apply the binomial distribution. 9. Use statistical reasoning to make decisions involving binomial distributions. (MA.E.3.4.2) 	<p>A. Use statistical reasoning to make inference about data collected from experiments, and communicate the results.</p>

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<p>IV Logic and Reasoning</p>	<ol style="list-style-type: none"> 1. Understand the role of Euclid’s Parallel postulate in the development of geometry. 2. Prove simple statements in non-Euclidean geometry. 3. Use “if and only if” to describe sets of points fitting criteria. 4. Write proofs to justify geometric statements. 5. Understand the nature of a deductive system and the effects of changing axioms on the system. 	<p>A. Write proofs to communicate results of mathematical discoveries.</p>