AVENTA LEARNING

Alignment Document
State of Hawaii and Aventa Learning Pre-Calculus

Pre-Calculus

2005-2007 Benchmark Blueprint

Strand	Standard	Topic	Benchmark	Unit Name	Course Topic Description
Numbers and Operations	**AG.1** Understand numbers, ways of representing numbers, relationships among numbers, and number systems		There are no benchmarks for this standard for this Grade/Course.		
Numbers and Operations	**AG.2** Understand the meaning of operations and how they relate to each other	Operations	**MA.AG.2.1** Use the sum, difference, scalar multiplication, dot product, and cross product of vectors to solve problems		
Numbers and Operations	**AG.3** Use computational tools and strategies fluently and, when appropriate, use estimation		There are no benchmarks for this standard for this Grade/Course.		
Measurement	**AG.4**Understand attributes, units, and systems of units in measurement; and develop and use techniques, tools, and formulas for measuring		There are no benchmarks for this standard for this Grade/Course.		

Geometry and Spatial Sense	**AG.5** Analyze properties of objects and relationships among the properties		There are no benchmarks for this standard for this Grade/Course.		
Geometry and Spatial Sense	**AG.6** Use transformations and symmetry to analyze mathematical situations		There are no benchmarks for this standard for this Grade/Course.		
Geometry and Spatial Sense	**AG.7** Use visualization and spatial reasoning to solve problems both within and outside of mathematics	Visualization and Spatial Reasoning	**MA.AG.7.1** Recognize conic sections and describe their characteristics	Conics, Polar Coordinates and Complex Numbers	Conics: Circles, Ellipses, Hyperbolas and Parabolas
Geometry and Spatial Sense	**AG.8** Select and use different representational systems, including coordinate geometry	Coordinate Geometry	**MA.AG.8.1** Use formulas involving division of a line segment and angles between two lines **MA.AG.8.2** Use the relationship between the slope of a line and the angle of inclination to solve problems **MA.AG.8.3** Use the polar coordinate system to graph **MA.AG.8.4** Use the relationship between polar and rectangular form to convert back and forth	 Conics, Polar Coordinates and Complex Numbers Conics, Polar Coordinates and Complex Numbers	 Polar Coordinates and Complex Numbers Polar Coordinates and Complex Numbers
Patterns, Functions, and Algebra	**AG.9** Understand various types of patterns and functional relationships	Geometric Shapes and Their Properties and Relationships	**MA.AG.9.1** Use the relationship among the properties of conic sections (e.g., asymptotes, center of a conic, directrix, eccentricity, focus, major and minor axis, vertex) and graph conic sections using the standard form of the equations	Conics, Polar Coordinates and Complex Numbers	Conics: Circles, Ellipses, Hyperbolas and Parabolas

			MA.AG.9.2 Use properties (e.g., domain, range, intercepts, symmetry, asymptotes) to graph polynomial, rational, and radical equations in two variables		
			MA.AG.9.3 Use properties (e.g., symmetry, tangents at the origin, excluded values, intercepts) to graph polar equations	Conics, Polar Coordinates and Complex Numbers	Polar Coordinates and Complex Numbers
			MA.AG.9.4 Use addition of ordinates to graph sums and differences of functions		
Patterns, Functions, and Algebra	**AG.10** Use symbolic forms to represent, model, and analyze mathematical situations	Numeric and Algebraic Representation	**MA.AG.10.1** Explain that a vector equation can represent a plane		
			MA.AG.10.2 Translate between parametric representations of curves and equations using rectangular coordinates	Conics, Polar Coordinates and Complex Numbers	Parametric Equations
			MA.AG.10.3 Use the concept of the distance from a point to a plane, distance between points, and the angle between two planes in three-dimensions to solve problems		
			MA.AG.10.4 Determine the intersection of polar equations algebraically and graphically, including using graphing technology when available	Conics, Polar Coordinates and Complex Numbers	Polar Coordinates and Complex Numbers
			MA.AG.10.5 Convert between parametric equations and their graphs	Conics, Polar Coordinates and Complex Numbers	Parametric Equations
			MA.AG.10.6 Determine the intersection of curves algebraically and graphically, including using graphing technology when available	Conics, Polar Coordinates and Complex Numbers	Parametric Equations

Data Analysis, Statistics, and Probability	**AG.11** Pose questions and collect, organize, and represent data to answer those questions		There are no benchmarks for this standard for this Grade/Course.		
Data Analysis, Statistics, and Probability	**AG.12** Interpret data using methods of exploratory data analysis		There are no benchmarks for this standard for this Grade/Course.		
Data Analysis, Statistics, and Probability	**AG.13** Develop and evaluate inferences, predictions, and arguments that are based on data		There are no benchmarks for this standard for this Grade/Course.		
Data Analysis, Statistics, and Probability	**AG.14** Understand and apply basic notions of chance and probability		There are no benchmarks for this standard for this Grade/Course.		