



Alignment Document  
State of Wyoming and Aventa Learning Pre-Calculus

**Pre-Calculus**

Standards	Benchmarks	Unit Name	Course Topic Description
1 Students use numbers, number sense, and number relationships in a problem-solving situation.	1.1 Students represent and apply real numbers in a variety of forms.		
	1.2 Students apply the structure and properties of the real number system.		
	1.3 Students explain their choice of estimation and problem solving strategies and justify results of solutions in problem-solving situations involving real numbers.		
	1.4 Students use proportional reasoning to solve problems.		
2 Students apply geometric concepts, properties, and relationships in a problem-solving situation.	2.1 Students use transformations, congruency, symmetry, similarity, perpendicularity, parallelism, and the Pythagorean Theorem to solve problems.	Conics, Polar Coordinates and Complex Numbers	Conics: Circles, Ellipses, Hyperbolas and Parabolas
	2.2 Students communicate, using mathematical language, to:		
	2.2.a Interpret, represent, or create geometric figures;	Conics, Polar Coordinates and Complex Numbers	Conics: Circles, Ellipses, Hyperbolas and Parabolas
	2.2.b Draw or build figures from a mathematical description;	Conics, Polar Coordinates and Complex Numbers	Conics: Circles, Ellipses, Hyperbolas and Parabolas
	2.2.c Analyze properties and determine attributes of 2- and 3-dimensional objects.	Conics, Polar Coordinates and Complex Numbers	Conics: Circles, Ellipses, Hyperbolas and Parabolas
	2.3 Students communicate the reasoning used in identifying geometric relationships in problem-solving situations.	Conics, Polar Coordinates and Complex Numbers	Conics: Circles, Ellipses, Hyperbolas and Parabolas
	2.4 Students solve problems involving the	Conics, Polar Coordinates and	Conics: Circles, Ellipses, Hyperbolas and

<p>coordinate plane such as the distance between two points, the midpoint, and slope.</p>	<p>2.5 Students connect geometry with other mathematical topics.</p>	<p>Complex Numbers</p>	<p>Parabolas</p>
<p>3 Students use a variety of tools and techniques of measurement in a problem-solving situation.</p>	<p>3.1 Students apply estimation and measurement using the appropriate methods and units to solve problems involving length, weight/mass, area, surface area, volume, and angle measure.</p>	<p>Conics, Polar Coordinates and Complex Numbers</p>	<p>Conics: Circles, Ellipses, Hyperbolas and Parabolas</p>
	<p>3.2 Students demonstrate an understanding of both metric and U. S. customary systems. Students are able to convert within each system.</p>		
	<p>3.3 Students identify and apply scale, ratios, and proportions in solving measurement problems.</p>		
	<p>3.4 Students solve problems of angle measure including those involving polygons or parallel lines cut by a transversal.</p>		
	<p>3.5 Students solve indirect measurement problems.</p>		
<p>4 Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem-solving situation.</p>	<p>4.1 Students use algebraic concepts, symbols, and skills to represent and solve real-world problems.</p>	<p>Exponential and Logarithmic Functions</p>	<p>Values and Applications</p>
	<p>4.2 Students write, model, and evaluate expressions, functions, equations, and inequalities.</p>	<p>Exponential and Logarithmic Functions</p>	<p>Properties and Graphs</p>
	<p>4.3 Students graph linear equations and interpret the results in solving algebraic problems.</p>		
	<p>4.4 Students solve, graph, or interpret systems of linear equations.</p>		
	<p>4.5 Students connect algebra with other mathematical topics.</p>	<p>Discrete Mathematics</p>	<p>Sequences and Series: Terms, Sums and Limits</p>
<p>5 Students use data analysis and probability to analyze given</p>	<p>5.1 Students apply knowledge of mean, median, mode, and range to interpret and</p>		



situations and the results of experiments.	evaluate information and data.		
	<b>5.2</b> Students draw reasonable inferences from statistical data and/or correlation/best fit line to predict outcomes.		
	<b>5.3</b> Students communicate about the likelihood of events using concepts from probability.		
	<b>5.3.a</b> sample space		
	<b>5.3.b</b> evaluate simple probabilities		
	<b>5.3.c</b> evaluate experimental vs. theoretical		
	<b>5.4</b> Students determine, collect, organize, and analyze relevant data needed to make conclusions.		