

Mathematics

Algebra III

9/18/2009

Data Analysis & Probability	Algebra	Geometry	Measurement	Number and Operations
<p>Definition: Collect, organize and interpret data to predict and draw conclusions.</p>	<p>Definition: Analysis of patterns, relations and functions involving variables.</p>	<p>Definition: Analyze the properties and relationships of shapes.</p>	<p>Definition: Use appropriate tools/units to measure and estimate.</p>	<p>Definition: Understanding and using numbers, systems and relationships.</p>
<p>Questions: Does data always lead to the truth? Is it real winning if the outcome is based on probability? How can patterns forecast the future?</p>	<p>Questions: How do patterns affect your life? What variables do you encounter in everyday life? What if there were no variables? How does algebra help us model/explain our world?</p>	<p>Questions: What is the best shape? Why? Is geometry useful? How would the world look without (insert any shape)? How would the world look if there were only (insert any shape)?</p>	<p>Questions: What things would be impossible without measurement? Why measure? Is there such a thing as exact measurement?</p>	<p>Questions: How would the world be different if we didn't have numbers? How much is enough?</p>
<p>Indicators: 1. Explain how changing data affects the mean, median and mode numerically and graphically e.g., stem plots and box plots. 2. Model data using scatter plots and make predictions with best fit lines. 3. Use technology to compute standard deviation and interpret the results. 4. Describe the standard normal curve and its general properties. 5. Use factorial notation, combinations and permutations to represent and solve problem situations. 6. Use theoretical and experimental probability to solve problems dealing with uncertainty e.g. compound events, independent events, simple dependent events.</p>	<p>Indicators: 1. Graph and solve polynomial equations and inequalities (including linear, radical, logarithmic, quadratic and higher order polynomials). 2. Solve systems of equations by various methods including graphing, elimination, substitution and matrices. 3. Divide polynomials using long and synthetic division. 4. Analyze transformations of graphs. 5. Evaluate and simplify logarithms using exponential form and laws of logarithms. 6. Investigate arithmetic and geometric sequences and series. 7. Describe and compare the characteristics of the following families of functions: quadratics with complex roots, polynomials of any degree, logarithms and rational functions; e.g. general shape, number of roots, domain and range, asymptotic behavior.</p>	<p>Indicators: 1. Use matrices to represent transformations. 2. Analyze the relationship between the graph and equation of the conic sections. 3. Apply the law of sines and law of cosines to solve triangles and applications. 4. Describe multiplication of a vector and a scalar graphically and algebraically, and apply to problem situations</p>	<p>Indicators: 1. Use the sine, cosine and tangent ratios to find missing measures in right triangles. 2. Find the value of the trigonometric functions of a given angle in standard position in various quadrants. 3. Use a radian and degree measurement for conversions and applications. 4. Find the measurement of co-terminal angles.</p>	<p>Indicators: 1. Perform operations with matrices. 2. Show the relationship between radical and exponential form. 3. Perform basic operations with monomials and polynomials. 4. Simplify expressions involving complex numbers. 5. Determine what properties hold for vector addition and multiplication, and for scalar multiplication 6. Model, using the coordinate plane, vector addition and scalar multiplication 7. Use vector addition and scalar multiplication to solve problems</p>