Pre-Calculus Curriculum

Content Standards	*Performance Standards*	*Sample Activities*	*Assessment Strategies*	*Resources*
Understand and describe patterns and functional relationships. Represent and analyze quantitative	Model real world situations and make generalizations about mathematical relationships using a variety of patterns and functions. Relate the behavior of	• Describe and compare properties and classes of functions including exponential, polynomial, rational logarithmic and trigonometric. • Analyze essential relations in a problem to determine possible functions that could model the situation. • Solve problems involving financial applications including compound interest, amortization of loans, and/or investments. • Apply the concepts of limits to sequences and asymptotic behavior of functions.	1. Tests 2. Quizzes 3. Projects 4. Homework 5. Class Work 6. Take Home Tests 7. Extra Credit Assignments 8. Rubrics	1. Text 2. Course Organizers 3. State Of CT Mathematics Curriculum Framework 4. Graphing Calculator 5. Cooperative Learning Groups 6. Instructional Center

relationships in a variety of ways. Use operations, properties, and algebraic symbols to determine equivalence and solve problems. Use numbers and their properties to compute flexibly and fluently, and to reasonably estimate measures and quantities. Develop and apply units, systems, formulas and appropriate tools to estimate and measure.	functions and relations to specific parameters and determine functions to model real world situations. Use and extend algebraic concepts to include real and complex numbers. Investigate mathematical properties and operations related to objects that are not numbers. Approximate measurements that can not be directly determined with some degree of precision using appropriate tools, techniques and strategies.	• Recognize the effect of changes in parameters on the graphs of functions or relations. • Relate the graphical representation of a function family and find equations, intercepts, maximum or minimum values, asymptotes and line of symmetry for that function. • Use logarithms to solve problems. • Perform operations with complex numbers and logarithms. • Use successive approximations, upper and lower bounds, limits to solve measurement problems.		

		• Use properties of similarity and techniques of trigonometry to make indirect measurements of lengths and angle to solve a variety of problems.		
Use spatial reasoning, location and geometric relationships to solve problems.	Use a variety of coordinate systems and transformations to solve geometric problems in two- and three-dimensions using appropriate tools and technology.	• Use Cartesian and navigational systems to represent analyze and solve geometric and measurement problems. • Represent translations, reflections, rotations, and dilations of plane figures using sketches, coordinates and function notation to examine the effects of transformations and their composites and to solve related geometric		
Collect, organize and display data using appropriate statistical	Create the appropriate			

and graphical methods. Develop and apply units, systems, formula and appropriate tools to estimate and measure.	visual or graphical representation of real data. Model real data graphically using appropriate tools, technology and strategies. Solve a variety of problems involving one-, two- and three-	problems. • Develop, use and explain applications and limitations of linear and nonlinear models and regressions in a variety of contexts. • Investigate and solve relevant problems, through designing statistical experiments and collecting, displaying and analyzing data in tabular, graphical, and symbolic forms. • Recognize the limitations of mathematical models based on sample data as representations of real-world situations. • Apply and defend regression models for bivariate data and use them to formulate predictions.		

	dimensional measurements using geometric relationships and trigonometric ratios.	• Select appropriate units, scales, degree of precision and strategies to determine length, angle measure, perimeter, circumference and area of plane geometric figures. • Use indirect methods including the Pythagorean theorem, trigonometric ratios and proportions in similar figures to solve a variety of measurement problems		