**Pre-Calculus**

| Geometry | Algebra |
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| 1.01 Transform relations in two dimensions; describe the results algebraically and geometrically.<br>1.02 Use the quadratic relations (parabola, circle, ellipse, hyperbola) to model and solve problems; justify results.<br>a) Solve using tables, graphs, and algebraic properties.<br>b) Interpret the constants and coefficients in the context of the problem.<br>1.03 Operate with vectors in two dimensions to model and solve problems. | 2.01 Use functions (polynomial, power, rational, exponential, logarithmic, logistic, piecewise-defined, and greatest integer) to model and solve problems; justify results.<br>a) Solve using graphs and algebraic properties.<br>b) Interpret the constants, coefficients, and bases in the context of the problem.<br>2.02 Use trigonometric and inverse trigonometric functions to model and solve problems; justify results.<br>a) Solve using graphs and algebraic properties.<br>b) Create and identify transformations with respect to period, amplitude, and vertical and horizontal shifts.<br>c) Develop and use the law of sines and the law of cosines.<br>2.03 For sets of data, create and use calculator-generated models of linear, polynomial, exponential, trigonometric, power, logistic, and logarithmic functions.<br>a) Interpret the constants, coefficients, and bases in the context of the data.<br>b) Check models for goodness-of-fit; use the most appropriate model to draw conclusions or make predictions.<br>2.04 Use the composition and inverse of functions to model and solve problems.<br>2.05 Use polar equations to model and solve problems.<br>a) Solve using graphs and algebraic properties.<br>b) Interpret the constants and coefficients in the context of the problem.<br>2.06 Use parametric equations to model and solve problems.<br>2.07 Use recursively-defined functions to model and solve problems.<br>a) Find the sum of a finite sequence.<br>b) Find the sum of an infinite sequence.<br>c) Determine whether a given series converges or diverges.<br>d) Translate between recursive and explicit representations.<br>2.08 Explore the limit of a function graphically, numerically, and algebraically. |