Math Analysis
Mathematics Content Standards

Students will...

1.0 Translate between polar and rectangular coordinates and interpret polar coordinates and vectors graphically.

2.0 Perform arithmetic operations on complex numbers, use trigonometric form of complex numbers and view a function of a complex variable as a function of two real variables. Know the proof of DeMoivre's theorem.

3.0 Give proofs of various formulas by mathematical induction.

4.0 Know and apply the fundamental theorem of algebra.

5.0 Complete the square on $ax^2 + by^2 + cx + dy + e = 0$ to put in standard form and graph. Describe the graph of a conic section using the coefficients of the quadratic equation that represents it. Identify foci, asymptotes and eccentricity from the equation. Derive a quadratic equation from a geometric description of the conic section.

6.0 Find the roots and poles of a rational function and graph the function, locating its asymptotes.

7.0 Demonstrate an understanding of functions and equations defined parametrically and graph them.

8.0 Understand the notion of limit of a sequence and limit of a function as the independent variable approaches a number of infinity. Determine whether certain sequences converge or diverge.