

**Part 1:** Real numbers, algebraic expressions, complex numbers, circles, lines, Chap 1 (From Textbook 1) Definition of a function, linear functions and models. Chap 2 (From Textbook 1) Quadratic functions and models, polynomial functions and their graphs, polynomial division, real zeros of polynomials, complex zeros, rational functions. Chap 3 (From Textbook 1)

**Part 2:** Exponential functions, logarithmic functions, exponential and logarithmic equations, modeling with exponential functions, logarithmic scales. Chap 4 (From Textbook 1)

**Part 3:** Trigonometric functions and their graphs, inverse trigonometric functions and their graphs, trigonometric identities, addition and subtraction formulas, basic trigonometric equations, polar coordinates and graphs, polar form of complex numbers, de Moivre's theorem. Chap 5, Chap 6, Chap 7 and Chap 8 (From Textbook 1)

**Part 4:** Limit and continuity of a functions, derivative of functions. Chap 2 (From Textbook 2) Derivatives of trigonometric functions, derivatives of logarithmic and exponential functions, the chain rule, hyperbolic functions and their derivatives. Chap 3 (From Textbook 2)

**Part 5:** Maximum and minimum values, the mean value theorem, indeterminate forms and l'Hopital's rule, summary of curve sketching. Chap 4 (From Textbook 2)

**Part 6:** Matrices and systems of linear equations, determinants and Cramer's rule, systems of linear equations, systems of inequalities. Vectors in three dimensions, The dot product, the cross product. Chap 9 and 10 (From Textbook 1)