- ambiguous case (SSA)
- Cos Law (SAS , SSS)
- applications

Unit 5 Vectors and Polar Coordinates

- adding vectors
- scalar multiples, subtracting vectors
- component form of a vector
- applications of vectors
- dot products of vectors
- angle between two vectors
- orthogonal vectors
- projection of vectors
- parametric equations of curves
- converting points: rectangular $\Leftrightarrow$ polar form
- negative r values, negative θ values
- converting equations: rectangular $\Leftrightarrow$ polar form
- symmetry in polar graphs
- graphing polar equations
- polar form of complex numbers: $z = r \operatorname{cis} \theta$
- multiplying and dividing in polar form
- DeMoivre's Theorem
- roots of complex numbers

Unit 6 Sequences and Series

- explicit and recursive sequences
- arithmetic sequences
- geometric sequences
- sequences as functions
- arithmetic series
- geometric series
- sum of an infinite series

- solving log equations
- compound interest
- compounding continuously

Unit 3 Trigonometric Functions

- degrees, minutes and seconds
- radian measure
- arc length
- angular speed
- right triangle definitions (SOHCAHTOA)
- three reciprocal ratios
- exact values (45 ° right triangle, 30° - 60° right triangle)
- angle of elevation, depression
- angles on a coordinate axis, coterminal angles
- x , y , r definitions of sin , cos and tan
- CAST Rule
- the unit circle
- graphs of sin , cos and tan
- period and amplitude
- transformations of trig functions
- periodic behavior
- graphs of reciprocal functions
- inverse trig functions

Unit 4 Analytic Trigonometry

- odd/even identities
- co-function identities
- 5 basic trig identities
- proving trig identities
- solving trig equations
- sum and difference formulas for sin, cos and tan
- angle between two lines
- double angle formulas
- double angle identities
- half angle formulas
- area of a triangle (SAS)
- Sin Law (ASA , AAS , SSA)

PreCalculus
Final Exam Topics

Unit 1 Functions

- definitions: relation, domain, range, function, dependent and independent variables, discrete and continuous variables
- finding domain and range graphically
- finding domain and range algebraically
- vertical line test
- features of an equation of a function
- three types of discontinuities
- vertical asymptotes
- horizontal asymptotes
- symmetry in x axis, y axis, origin, $y=x$
- tests for symmetry (mappings)
- odd and even functions
- maximums, minimums, increasing/decreasing intervals
- 10 basic functions
- composition of functions
- 1 – 1 functions and horizontal line test
- inverses (ordered pairs, graphs, equations)
- translations (mappings, graphs and equations)
- reflections (mappings, graphs and equations)
- stretches and shrinks (mappings, graphs and equations)
- combining transformations

Unit 2 Exponential, Logistic and Logarithmic Functions

- exponential functions $y=b^x$ (allowable values of b)
- exponential functions of the form $y=a\,b^x$ ($b>1$, $0<b<1$)
- definition of e
- logistic functions
- growth and decay with exponential functions
- population growth with logistic functions
- logarithmic functions
- inverse property $\log_b b^x = b^{\log\, x} = x$
- common and natural logs
- evaluating logs
- laws of logarithms
- change of base formuls
- applications of logs