PS 1   Understands how to add, subtract and multiply matrices of appropriate dimensions. Also understands the use of scalars.

PS 2   Understands how to calculate determinants of square matrices of any order by use of expansion by minors and how to utilize shortcuts for 2x2 and 3x3 matrices. Also understands how to utilize basic row operations to facilitate the process.

PS 3   Understands how to calculate an inverse of a square matrix of any order by use of augmented matrices and row operations. Also understands how to use an inverse to "divide" a matrix by multiplying by an inverse.

PS 4   Understands how to use row operations and augmented matrices to solve systems of equations.

PS 5   Understands the matrix terminology vocabulary: eigenvalue, cofactor, idempotent, linearly dependent/independent, trace, rank, nilpotent, nullity, adjoint, and transpose.

PS 6   Understands basic sampling methods and distributions of data such as frequency distributions and tables.

PS 7   Understands basic methods of data presentation such as frequency histograms, pie charts, ogives, box and whisker plots.

PS 8   Understands measures of central tendency: mean, median, mode, quartiles, percentiles, range, interquartile range, variance and standard deviation. Also understands the significance of the value of the standard deviation and what its rigorous definition is.

PS 9   Understands the difference between parameters and statistics and the major difference between them. Also understands the binomial and poisson distributions and how to calculate means and variances of both distributions.

PS 10   Understands the normal distribution and how to convert a data value into a z-score. Also understands that a z-score represents how many standard deviations a data point is from the mean, and also is able to convert from a z score to a probability. Also understands how to reverse the process.

PS 11   Understands notation of probability and basic terminology such as sample space, complementary, independent, dependent, intersection and union.

PS 12   Understands concepts of sample space, probability, and likely outcomes. Also understands that an event plus its complement is itself and that the probability of any event is P(A)/P(U) where P(A) is desired result and P(U) is sample space.

PS 13   Understands the concept of "and" and "or" events and the difference between them. Also understands how to calculate the intersection of such events.

PS 14   Understands the use of Bayes' theorem for conditional probability and how to calculate conditional probability without it.

PS 15   Understands the difference between a sequence and a series. Also knows the properties of finite and infinite series and is able to sum a sequence by separating it into 2 separate sequences.

PS 16   Understands the properties of an arithmetic sequence and is able to sum a finite number of arithmetic terms and is able to find the nth term in an arithmetic sequence.

PS 17   Understands the properties of a geometric sequence and is able to find the sum of such a sequence in infinite and finite conditions. Also understands how to find the nth term of a geometric sequence.

PS 18   Understands sigma notation and is able to convert any arithmetic sequence into sigma notation form. Also is able to sum any determined amount of terms written in sigma notation.

PS 19   Understands how to add, subtract, multiply and exponent complex numbers. Also understands notation of complex numbers such as Im(z) being the imaginary component of z.

PS 20   Understands the conjugate of a complex number and how to rationalize complex numbers with conjugates. Also understands the Argand plane in comparison to the Cartesian plane.

PS 21   Understands the trigonometric representation of a complex number and how to convert to it from Argand

coordinates.

PS 22 Understands how to find conjugate roots of polynomials with real coefficients.

PS 23 Understands the radian measure and how to convert from degrees to radians and vice versa. Also understands cosine and sine in relation to the unit circle and the tangent.

PS 24 Understands secant, cosecant, and cotangent and how to calculate them. Also understands the basic Pythagorean trigonometric identities and how to use them to simplify trigonometric expressions.

PS 25 Understands the sine, cosine, and tangent addition and subtraction formulas and how to use them to derive the double and triple angle formulas.

PS 26 Understands the sinuous graphs of sine, cosine and tangent in the form of A(BsinX+C)+D. Also understands the inverse trigonometric functions and their domains, ranges, and graphs.

PS 27 Understands how to solve trigonometric equations by use of identities to simplify expressions. Also understands the law of sines and cosines along with the special 2-case law of sines.

PS 28 Understands the domain and range of a function and how to use the vertical line test. Also understands the composite and inverse function and what they do.

PS 29 Understands transformations and rotations of functions and how to use vectors in order to perform linear transformations.

PS 30 Understands the absolute value and step functions and how to roughly sketch their graphs without using a table.

PS 31 Understands the properties of a quadratic function and the use of the quadratic formula to find its roots.

PS 32 Understands the properties of exponential and logarithmic functions including their domains and their ranges. Also understands how to roughly sketch their graphs without the use of a table.

PS 33 Knows the definition of a limit and be able to calculate standard limits and convergence.

PS 34 Knows the definition of a derivative (dy/dx, dx, etc.), know the definition of a second derivative, and be able to apply these definitions to find max/min, tangent lines, optimization.

PS 35 Knows the definition of an integral and be able to do basic integrals, and be able to apply both derivatives and integrals to position/velocity/acceleration.

PS 36 Is able to recognize infinite series and find the limit, convergence, and sums.

PS 37 Is able to recognize power series and find Taylor-McLaurin polynomials/power series.

PS 38 Knows how to use Euler's method and $y = vx$ substitution.

PS 39 Demonstrates use of vectors in two and three dimensions.

PS 40 Understands both graphical and algebraic representations of vectors and vector operations.

PS 41 Finds and applies the derivative and integral of a vector function.