MA1501_GE1358 Midterm Checklist

Week 1 and 2
- The definition of coordinate
- Vector and Scalar
- Vector, cross product vs scalar product
- Matrices
- Different types of matrices
- Operation of matrices (product, addition/subtraction, multiplication of scalar)
- Determinants (Properties, types of special matrices, specialty of inverses)
- Gaussian Elimination (Cramer's, system of equations, substitution and elimination)

Week 3 and 4
- Foundations of Geometry- proof and axioms, Cartesian plane, straight line, midpoint, gradient

  2D
- Distance, division of line segment (external and internal)
- Properties of a line, i.e. equation of a horizontal, vertical, the gradient (types)
- Equation of a line, different forms (point-slope, slope intercept, intercept-intercept)
- Equation of a line (types of questions with missing information) I.e. given the slope and a point on the line
- Types of a line, parallel vs perpendicular
- Intersections of two lines (3 types and their corresponding solutions)
- Distance, , between two points, between two lines
- Representation of a line: parametric and vector
- Angle between two lines

  3D
- 3D coordinate system
- Distance between 2 points
- Straight line
- Vector
- Parametric
- Symmetric
- Types of questions (altogether)
- Points of intersections between lines
- Line passing through points

Week 5 and 6
- The plane (3D)
- Vector
- Symmetric
- Vector

- Parametric
- Types of questions (altogether)
- Points of intersections between line and 2 planes
- Line passing through planes find points

Week 7
- Polar to cartesian and vice versa
- Plotting points in polar coordinates
- Converting coordinates between systems
- Polar equations: spiral, circles, limacons, roses, cardioid.
- Converting equations between systems

Disclaimer: I have just provided an overview of the materials. The above checklist does not include a wholly, extensive, and exhaustive list for examination purposes.