**Problem 1**

1. Clarke 1880 ellipsoid has a semi-major axis of a = 6378249.145 m and inverse flattening 1/f = 293.465. Compute all the ellipsoidal parameters b, e, and e’.
2. Compute other ellipsoidal parameters for GRS 80 ellipsoid if the semi-major and semi-minor axes are a = 6378137 m and b = 6356752.3141 m respectively.
3. A point in 5 Killo Campus has λ = 38.762782°, φ = 9.040384°, and h = 2477 in WGS 84 ellipsoid. Compute the Radius of Curvature of the prime vertical (N) and the radius of curvature of the meridian (M) and the mean radius of curvature (Rm) for the point.
4. Using MATLAB, plot the radius of curvature of the prime vertical, meridian and the mean of GRS 80 Ellipsoid for latitude of 0 to 90.
5. Calculate the meridian arc length from the Equator to the Pole for GRS 80 ellipsoid. Compute also the length for 1° meridian arc.