1. Consider the curve \( c(t) = (\cos t, \sin t, \sin t) \) in the Euclidean space \( \mathbb{R}^3 \).

   (a) Compute its Frenet frame.
   (b) Compute its curvature and torsion.

2. Consider the paraboloid \( z = x^2 + y^2 \).

   (a) Find a parametrization of the paraboloid.
   (b) Compute the first fundamental form as a matrix in the coordinate frame of your parametrization.
   (c) Compute the second fundamental form as a matrix in the coordinate frame of your parametrization.
   (d) Find the Gauss curvature at \((x, y, z) = (0, 0, 0)\).