#1) An uncharged conducting sphere of radius $A$ is centered at the origin. A charge $Q$ is located at the point $(0,0,L)$ where $L > R$. Find:
   a) the electric field everywhere
   b) the charge density on the surface of the sphere
   c) the force on the charge $Q$

#2) A point charge $Q_1 = Q_0 \hat{x}$ is located at the origin. A second charge $Q_2 = Q_2(\cos \phi \hat{x} + \sin \phi \hat{z})$ is located at the point $(x,y,z)$. Find the torque and force on $Q_2$.