1. Find a stable equilibrium position of a solid ball with a cavity (see Fig. below). Prove that this is a stable equilibrium position (make a figure).

2. Imagine that there is a planet with a hole as in the figure above. calculate the gravity force applied to a 1 kg object placed in the center of the planet. The density of the planet is 2000 $\mathrm{kg} / \mathrm{m}^{3}$, the radius of the hole is 500 km and its center is 2000 km away from the center of the planet.
