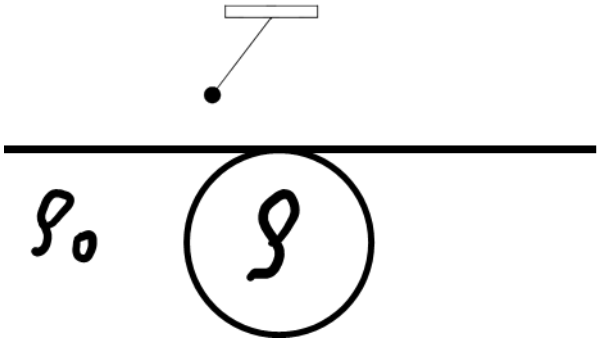
Homework 17.

1. How you have to change the length of the pendulum for the oscillation period became equal to this of the pendulum with the unchanged length placed 10km above the ground?

2. There is a spherical stone buried right below the ground. The stone density ρ is higher than ρ_0 – the density of the earth. You place a pendulum right above the stone. Is it possible to evaluate the stone density from the change of the pendulum oscillation period?



3. A uniform rod of mass *m* is connected to a slab as it is shown in the figure below. The force constant of the coil spring is ***K***. The whole construction is placed on a frictionless table, so the table surface is parallel to the picture plane. The slab is attached to the table and cannot move. Find period of small oscillations of the rod. The moment of inertia of the rod with respect to the pivot point in the figure is $\boldsymbol{ml^2/3}$