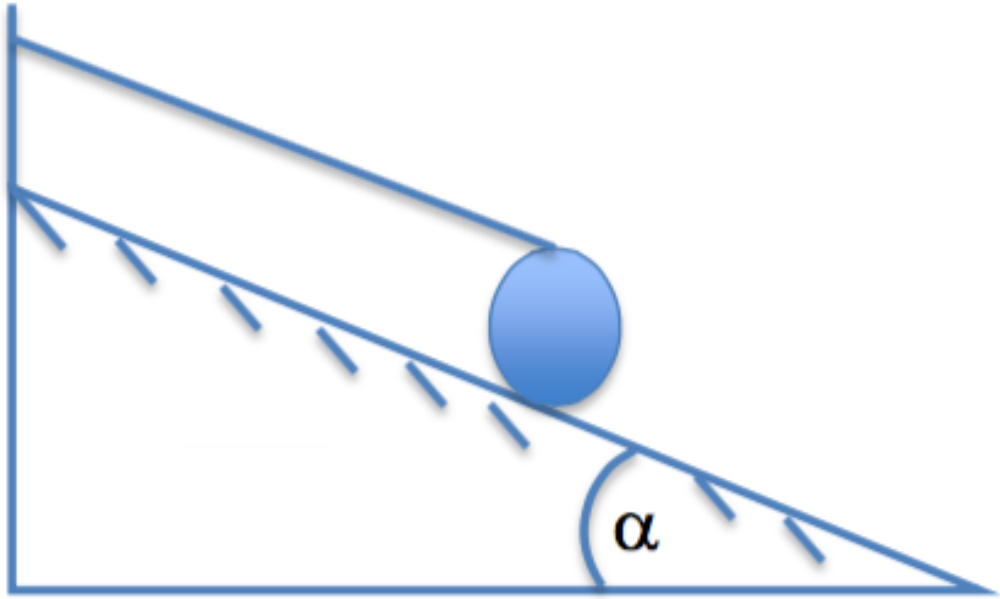
EXERCISE 2

An ideal cord is connected to a wall on the top of an inclined plane at one end and is wound around a thin homogeneous cylinder of mass *M* and radius *R*. The inclination angle is α and the static and dynamic friction coefficients between cylinder and plane are μ_s, μ_d, and the viscosity of the air is negligible. The cylinder is at rest at the time *t=0*. Find the linear and angular acceleration of the cylinder.



DATA: *M=0.1Kg, R=0.07m,* $\alpha = 45°$, $\mu_d = 0.2$; $\mu_s = 0.4$