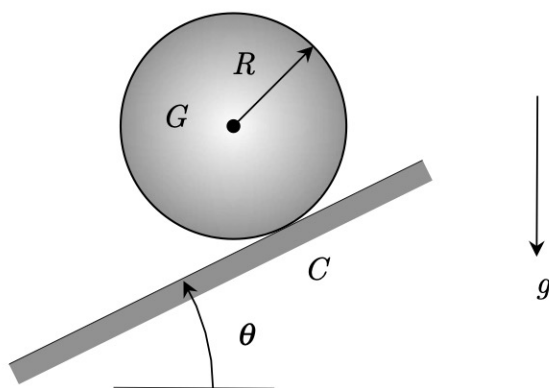


**Homework H.5.B**

**Given:** A homogeneous sphere of mass  $m$  and radius  $R$  is released from rest while in contact with a rough inclined surface.

**Find:** For this problem:

- If the sphere is able to roll without slipping on the inclined surface, determine the acceleration of its center of mass  $G$ .
- If the sphere slips on the inclined surface (coefficient of kinetic friction  $\mu_k = 0.2$ ), determine the acceleration of its center of mass  $G$ .



Use the following parameters in your analysis:  $m = 10$  kg,  $R = 0.2$  m and  $\theta = 60^\circ$ .