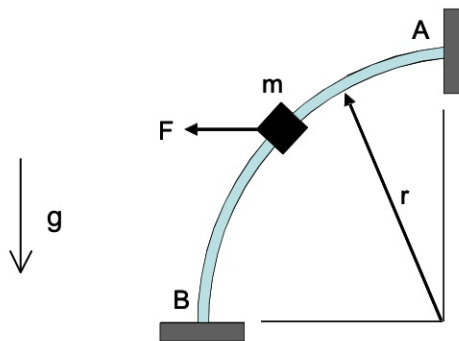


Homework H.4.G

Given: The collar, shown below, of mass m , starts from rest at point A. A constant force F is applied to the collar in the direction shown. Note that the mechanism lies in the vertical plane. Assume all surfaces to be smooth.

Find: Determine the speed of the collar when it reaches point B.



Please leave your answer in terms of, at most, m , g , F and r .

Homework H.4.H

Given: A rocket sled of mass m is initially moving up an incline under the action of a thrust force F_T with a speed of v_1 . The frictional resistance on the sled as it moves up the incline can be modeled as sliding friction with a coefficient of kinetic friction of μ_k . It is assumed that the rocket sled is under-powered; that is, it has a negative rate of change of speed as it moves up the incline. Assume that the mass of the sled does not decrease significantly as it moves up the incline.

Find: Determine the maximum distance that the sled can move up the incline before coming to rest.

