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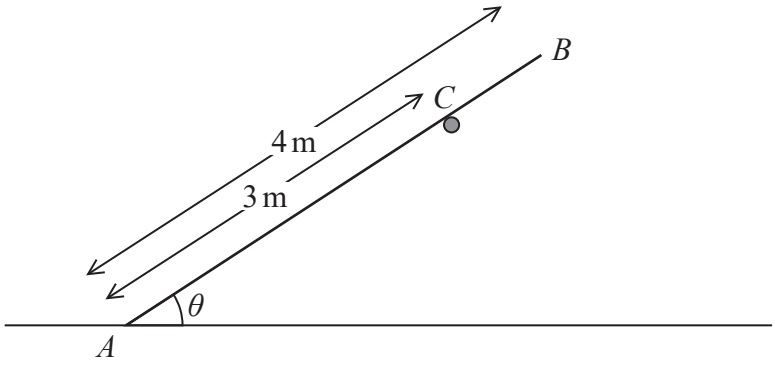


Figure 1

A uniform rod, AB, has length 4 m and weight 160 N. The rod rests against a fixed small smooth horizontal peg. The peg is perpendicular to the vertical plane containing AB. The rod rests on the peg at C, where $AC = 3$ m. The end A of the rod rests on rough horizontal ground and the rod is at an angle θ to the ground, as shown in Figure 1.

Given that $\cos\theta = \frac{3}{4}$ and the rod is in limiting equilibrium,

(a) show that the magnitude of the force acting on the rod at C is 80 N,

(3)

(b) find the coefficient of friction between the rod and the ground.

(6)

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