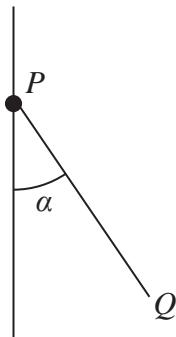


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**Figure 2**

A small bead of mass 0.2 kg is attached to the end P of a light rod PQ . The bead is threaded onto a fixed vertical rough wire.

The bead is held in equilibrium with the rod PQ inclined to the wire at an angle α , where $\tan \alpha = \frac{4}{3}$, as shown in Figure 2.

The thrust in the rod is T newtons.

The bead is modelled as a particle.

- (a) Find the magnitude and direction of the friction force acting on the bead when $T = 2.5$

(3)

The coefficient of friction between the bead and the wire is μ .

Given that the greatest possible value of T is 6.125

- (b) find the value of μ .

(7)



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