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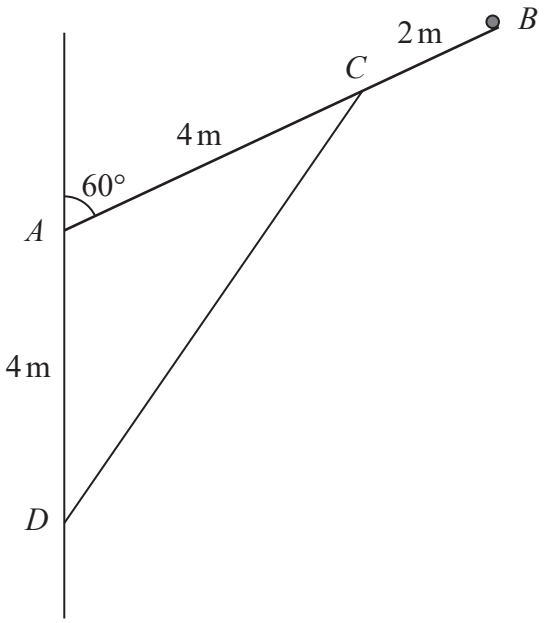


Figure 3

A uniform pole AB, of weight 50 N and length 6 m, has a particle of weight W newtons attached at its end B. The pole has its end A freely hinged to a vertical wall.
A light rod holds the particle and pole in equilibrium with the pole at 60° to the wall.
One end of the light rod is attached to the pole at C, where $AC = 4$ m.
The other end of the light rod is attached to the wall at the point D.
The point D is vertically below A with $AD = 4$ m, as shown in Figure 3.

The pole and the light rod lie in a vertical plane which is perpendicular to the wall.

The pole is modelled as a rod.

Given that the thrust in the light rod is $60\sqrt{3}$ N,

(a) show that $W = 15$

(4)

(b) find the magnitude of the resultant force acting on the pole at A.

(6)

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Question 6 continued

(Total for Question 6 is 10 marks)