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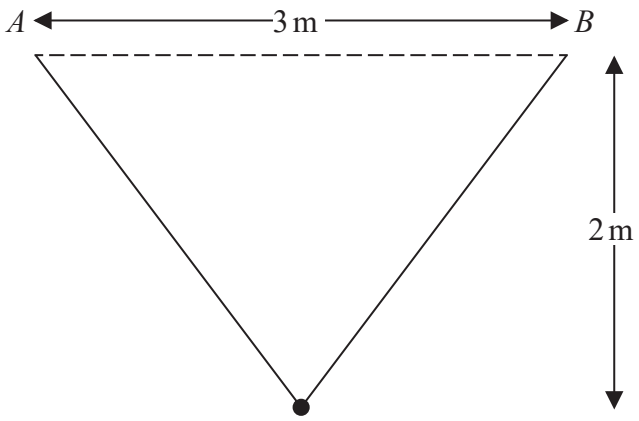


Figure 2

A smooth bead of weight 12 N is threaded onto a light elastic string of natural length 3 m. The points A and B are on a horizontal ceiling, with $AB = 3$ m. One end of the string is attached to A and the other end of the string is attached to B.

The bead hangs freely in equilibrium, 2 m below the ceiling, as shown in Figure 2.

(a) Find the tension in the string.

(4)

(b) Show that the modulus of elasticity of the string is 11.25 N.

(2)

The bead is now pulled down to a point vertically below its equilibrium position and released from rest.

(c) Find the elastic energy stored in the string at the instant when the bead is moving at its maximum speed.

(2)

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Question 2 continued

Q2

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