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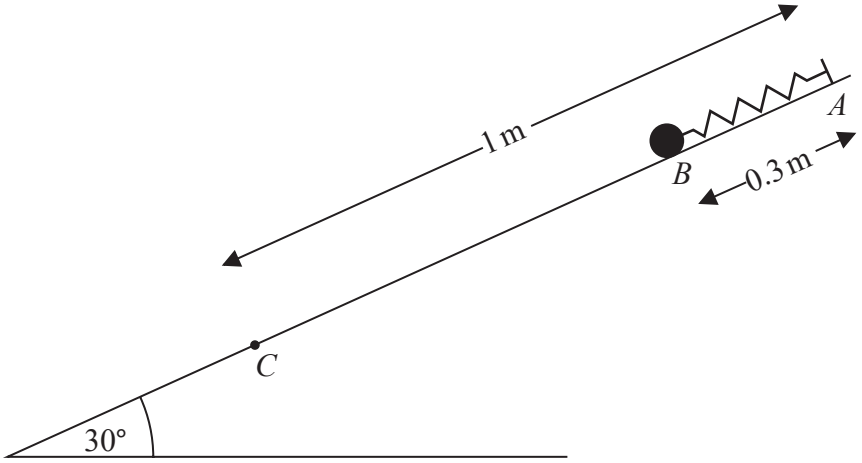


Figure 3

A particle P of mass 2 kg is attached to one end of a light elastic spring, of natural length 0.8 m and modulus of elasticity 12 N. The other end of the spring is attached to a fixed point A on a rough plane. The plane is inclined at 30° to the horizontal. Initially P is held at rest on the plane at the point B, where B is below A, with $AB = 0.3$ m and AB lies along a line of greatest slope of the plane. The point C lies on the plane with $AC = 1$ m, as shown in Figure 3.

The coefficient of friction between P and the plane is 0.3

After being released P passes through the point C.

Find the speed of P at the instant it passes through C.

(7)

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Question 3 continued

Q3

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