6. A particle P of mass 0.4 kg is attached to one end of a light elastic string, of natural length 0.8 m and modulus of elasticity 0.6 N. The other end of the string is fixed to a point A on a rough horizontal table. The coefficient of friction between P and the table is $\frac{1}{7}$

The particle P is projected from A, with speed $1.8\,\text{m}\,\text{s}^{-1}$, along the surface of the table.

After travelling 0.8 m from A, the particle passes through the point B on the table.

(a) Find the speed of P at the instant it passes through B.

(5)

The particle P comes to rest at the point C on the table, where ABC is a straight line.

(b) Find the total distance travelled by P as it moves directly from A to C.

(6)

(c) Show that P remains at rest at C.

(3)

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