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6. A fixed rough plane is inclined at an angle θ to the horizontal, where $\tan \theta = \frac{5}{12}$

A particle of mass 6 kg is projected with speed 5 m s^{-1} from a point A on the plane, up a line of greatest slope of the plane.

The coefficient of friction between the particle and the plane is $\frac{1}{4}$

- (a) Find the magnitude of the frictional force acting on the particle as it moves up the plane. (3)

The particle comes to instantaneous rest at the point B .

- (b) Find the distance AB . (5)

The particle now slides down the plane from B . At the instant when the particle passes through the point C on the plane, the speed of the particle is again 5 m s^{-1}

- (c) Find the distance BC . (5)

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