

Section 1: Friction

Exercise level 2

- In this question take g to be 10 ms^{-2} .

A particle of mass 0.8 kg is at rest on a rough horizontal plane. The coefficient of friction between the particle and the plane is 0.5 . Find the least force required to pull the particle along the plane if the force is

 - horizontal
 - at an angle of 30° to the plane.
- A block of weight 18 N rests in equilibrium on a rough horizontal plane under the action of a force of 9 N . Find the magnitude of the frictional force on the block given that the external force acts

 - horizontally
 - vertically downwards
 - downwards at an angle of 60° to the horizontal.
- A block of weight 20 N rests on a rough plane inclined at 30° to the horizontal. Given that the block is on the point of sliding down the plane, find the coefficient of friction.
- A block of mass 20 kg rests on a rough plane inclined at an angle of θ to the horizontal such that $\sin \theta = \frac{7}{25}$. The coefficient of friction between block and plane is 0.2 .

 - Find the force, acting parallel to the plane, required to stop the block sliding down the plane.
 - Find the force, acting parallel to the plane, required to move the block up the plane.