

7.3) Friction and static particles

Worked example

A mass of 4 kg rests on a rough horizontal plane. The mass may be modelled as a particle, and the coefficient of friction between the mass and plane is 0.25. Find the magnitude of the maximum force P N which acts on this mass without causing it to move if:

- a) The force P is horizontal
- b) The force P acts at an angle of 30° above the horizontal

Your turn

A mass of 8 kg rests on a rough horizontal plane. The mass may be modelled as a particle, and the coefficient of friction between the mass and plane is 0.5. Find the magnitude of the maximum force P N which acts on this mass without causing it to move if:

- a) The force P is horizontal
- b) The force P acts at an angle of 60° above the horizontal

a) 39 N (2 sf)

b) 42 N (2 sf)