

Worked example

A box of mass 20kg rests in limiting equilibrium on a rough plane inclined at 10° above the horizontal.

(a) Find the coefficient of friction between the box and the plane.

A horizontal force of magnitude P N is applied to the box. Given that the box remains in equilibrium,

(b) find the maximum possible value of P .

Your turn

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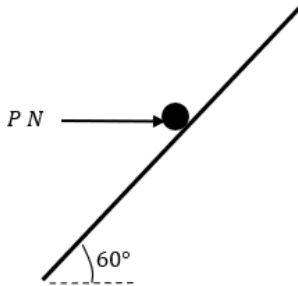
(b) find the maximum possible value of P .

a) $\mu = 0.36$ (2 sf)

b) $P = 82$ N (2 sf)

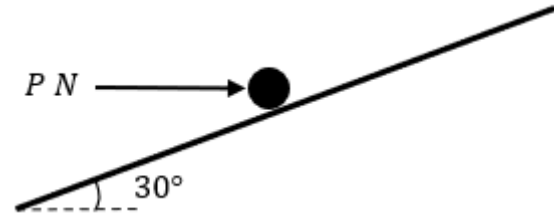
Worked example

- A parcel of weight 20 N lies on a rough plane inclined at an angle of 60° to the horizontal. A horizontal force of magnitude P Newtons acts on the parcel. The parcel is in equilibrium and on the point of slipping up the plane. The normal reaction of the plane on the parcel is 36 N . The coefficient of friction between the parcel and the plane is μ . Find:
- The value of P
 - The value of μ
- The horizontal force is removed.
- Determine whether or not the parcel moves.



Your turn

- A parcel of weight 10 N lies on a rough plane inclined at an angle of 30° to the horizontal. A horizontal force of magnitude P Newtons acts on the parcel. The parcel is in equilibrium and on the point of slipping up the plane. The normal reaction of the plane on the parcel is 18 N . The coefficient of friction between the parcel and the plane is μ . Find:
- The value of P
 - The value of μ
- The horizontal force is removed.
- Determine whether or not the parcel moves.



- 19 N (2 sf)
- 0.62 (2 sf)
- Does not slide