4 Fig. 4.1 shows a metal cylinder of height 4.5 cm and base area 24 cm^2.

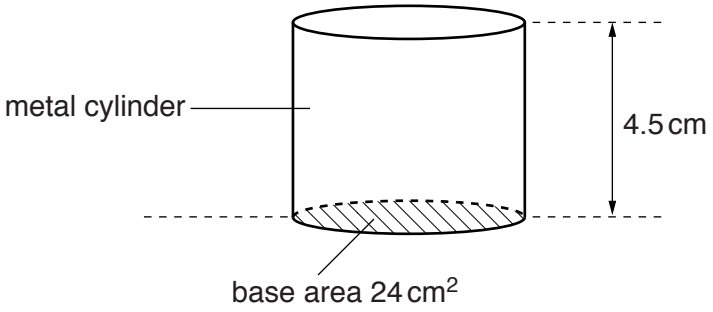

Fig. 4.1

The density of the metal is 7900 $kg\,m^{-3}$.

(a) Show that the mass of the cylinder is 0.85 kg.

[2]

(b) The cylinder is placed on a plank, as shown in Fig. 4.2.

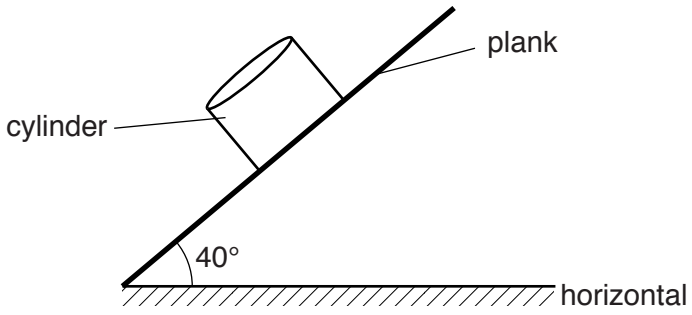

Fig. 4.2

The plank is at an angle of 40° to the horizontal.

Calculate the pressure on the plank due to the cylinder.

pressure = ... Pa [3]

(c) The cylinder then slides down the plank with a constant acceleration of $3.8\,m\,s^{-2}$.
A constant frictional force f acts on the cylinder.

Calculate the frictional force f.

f = ... N [3]