

14

A £2 coin has a diameter of 28 mm and a mass of 12 grams.

A uniform rod  $AB$  of length 160 mm and a fixed load of mass  $m$  grams are used to check that a £2 coin has the correct mass.

The rod rests with its midpoint on a support.

A £2 coin is placed face down on the rod with part of its curved edge directly above  $A$ .

The fixed load is hung by a light inextensible string from a point directly below the other end of the rod at  $B$ , as shown in the diagram.



14 (a)

Given that the rod is horizontal and rests in equilibrium, find  $m$ .

[3 marks]

14 (b)

State an assumption you have made about the £2 coin to answer **part (a)**.

[1 mark]