

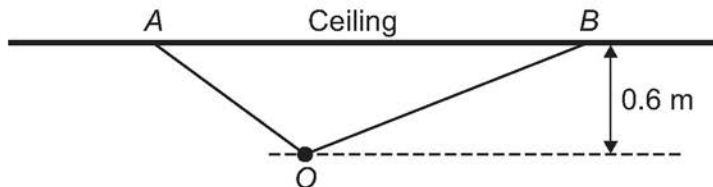
18

An object, O , of mass m kilograms is hanging from a ceiling by two light, inelastic strings of different lengths.

The shorter string, of length 0.8 metres, is fixed to the ceiling at A .

The longer string, of length 1.2 metres, is fixed to the ceiling at B .

This object hangs 0.6 metres directly below the ceiling as shown in the diagram.



18 (a)

Show that the tension in the shorter string is over 30% more than the tension in the longer string.

[4 marks]

18 (b)

The tension in the longer string is known to be $2g$ newtons.

Find the value of m .

[4 marks]