Corbettmaths

Moments

Mechanics

Video Tutorial

The turning effect of a force is found by multiplying the magnitude of the force by its perpendicular distance.

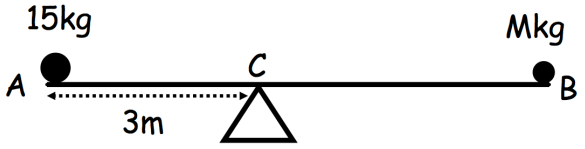
Moment = Force x Perpendicular Distance

When in equilibrium, the sum of the clockwise moments will equal the sum of the anticlockwise moments, about any point.

In addition, the sum of the upward forces will equal the sum of the downward forces.

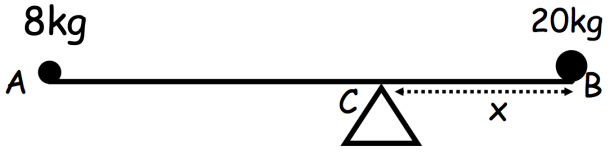
A uniform plank AB of length 8m and mass 10kg rests on a support at C, such that AC = 3m.
A mass of 15kg is placed on A and a mass of M kg is placed on B.

Work out M



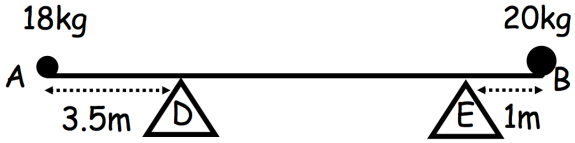
A uniform plank AB of length 2m and mass 12kg rests on a support at C, where BC = x metres.
A mass of 8kg is placed on A and a mass of 20kg is placed on B.

(a) Find the normal reaction at the support.
(b) Find x



A uniform beam AB of length 10m and mass 6kg rests 2 supports, D and E, such that AD = 3.5m and BE = 1m.
A mass of 18kg is placed on A and a mass of 20kg is placed on B.

Work out the normal reactions at D and E.



A uniform plank AB of length 8m and mass 20kg rests 2 supports at D and E, such that AD = 0.75m and BE = 0.75m
An object that weighs 50kg is placed on the plank at C.
The normal reaction at D is three times the normal reaction at E.

Work out the distance AC.

