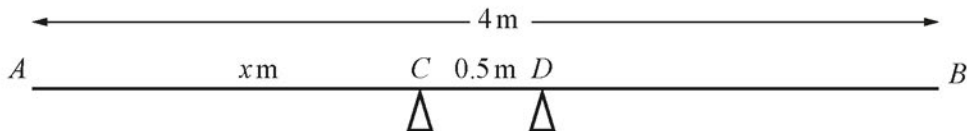


- 9 A uniform plank AB has weight 100 N and length 4 m . The plank rests horizontally in equilibrium on two smooth supports C and D , where $AC = x\text{ m}$ and $CD = 0.5\text{ m}$ (see diagram).



The magnitude of the reaction of the support on the plank at C is 75 N . Modelling the plank as a rigid rod, find

- (i) the magnitude of the reaction of the support on the plank at D , [1]
- (ii) the value of x . [3]

A stone block, which is modelled as a particle, is now placed at the end of the plank at B and the plank is on the point of tilting about D .

- (iii) Find the weight of the stone block. [3]
- (iv) Explain the limitation of modelling
 - (a) the stone block as a particle, [1]
 - (b) the plank as a rigid rod. [1]