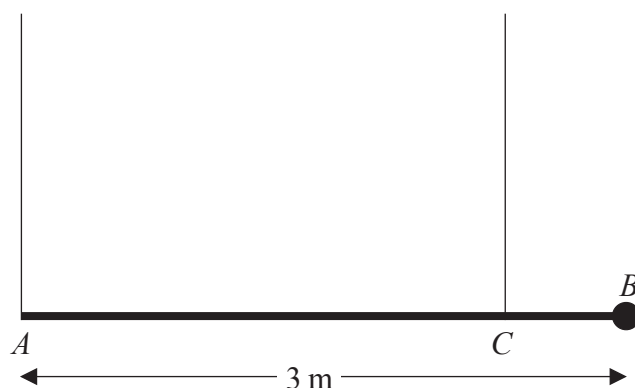


### Figure 1



A plank  $AB$  has mass  $40\text{ kg}$  and length  $3\text{ m}$ . A load of mass  $20\text{ kg}$  is attached to the plank at  $B$ . The loaded plank is held in equilibrium, with  $AB$  horizontal, by two vertical ropes attached at  $A$  and  $C$ , as shown in Figure 1. The plank is modelled as a uniform rod and the load as a particle. Given that the tension in the rope at  $C$  is three times the tension in the rope at  $A$ , calculate

- (a) the tension in the rope at  $C$ , (2)
- (b) the distance  $CB$ . (5)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.