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**2.**

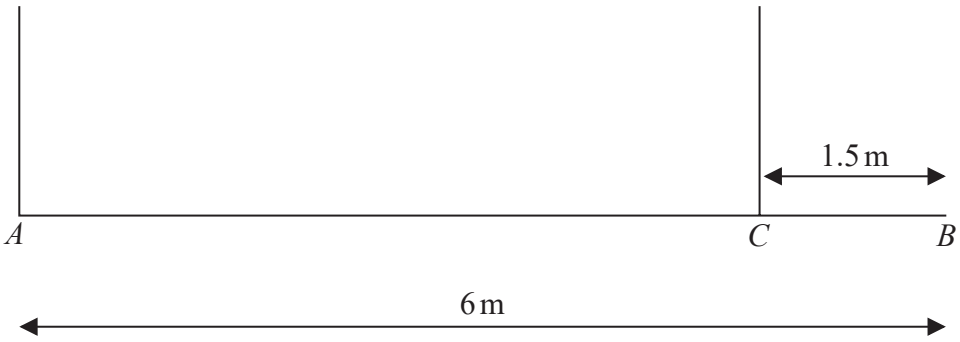



**Figure 1**

A non-uniform beam $AB$ has length 6 m and weight $W$ newtons. The beam is supported in equilibrium in a horizontal position by two vertical ropes, one attached to the beam at $A$ and the other attached to the beam at $C$, where $CB = 1.5$ m, as shown in Figure 1.

The centre of mass of the beam is 2.625 m from $A$.

The ropes are modelled as light strings. The beam is modelled as a non-uniform rod.

Given that the tension in the rope attached at $C$ is 20 N greater than the tension in the rope attached at $A$,

(a) find the value of $W$.

**(6)**

(b) State how you have used the fact that the beam is modelled as a rod.

**(1)**

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**Question 2 continued**

**(Total 7 marks)**

**Q2**