

- 2 (a) The kilogram, metre and second are all SI base units.

State two other SI base units.

1.

2.

[2]

- (b) A uniform beam AB of length 6.0 m is placed on a horizontal surface and then tilted at an angle of 31° to the horizontal, as shown in Fig. 2.1.

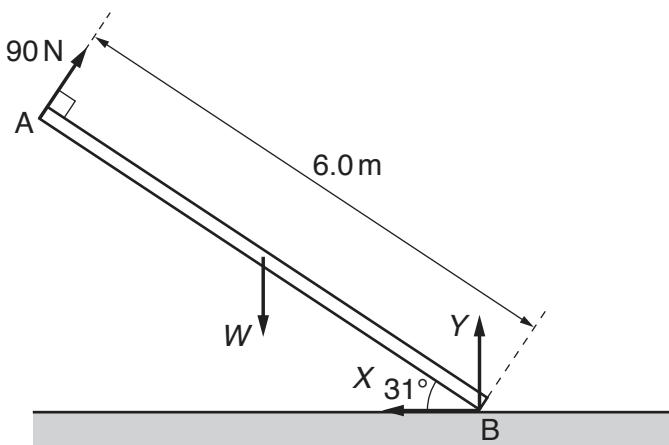


Fig. 2.1 (not to scale)

The beam is held in equilibrium by four forces that all act in the same plane. A force of 90 N acts perpendicular to the beam at end A. The weight W of the beam acts at its centre of gravity. A vertical force Y and a horizontal force X both act at end B of the beam.

- (i) State the name of force X .

..... [1]

- (ii) By taking moments about end B, calculate the weight W of the beam.

$$W = \dots \text{N} \quad [2]$$

- (iii) Determine the magnitude of force X .

$$\text{magnitude of force } X = \dots \text{N} \quad [1]$$

[Total: 6]