

- 3 A rod PQ is attached at P to a vertical wall, as shown in Fig. 3.1.

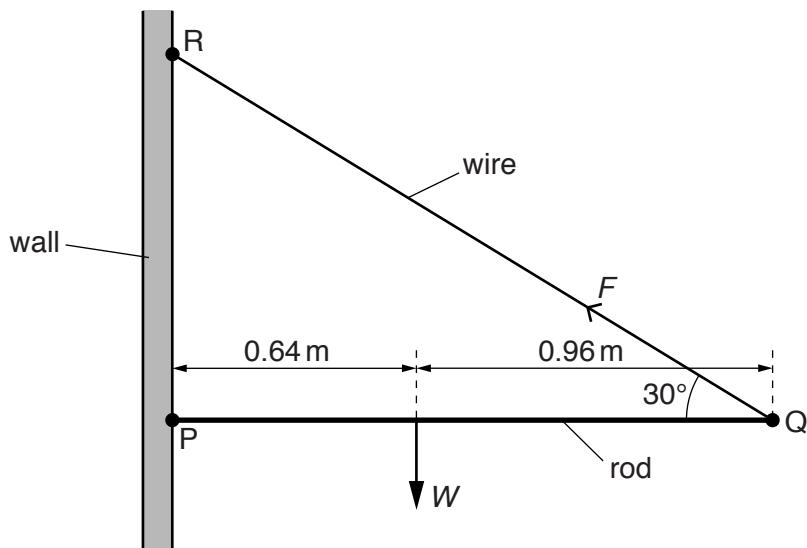


Fig. 3.1

The length of the rod is 1.60 m. The weight W of the rod acts 0.64 m from P. The rod is kept horizontal and in equilibrium by a wire attached to Q and to the wall at R. The wire provides a force F on the rod of 44 N at 30° to the horizontal.

(a) Determine

(i) the vertical component of F ,

$$\text{vertical component} = \dots\dots\dots\dots\dots \text{N} \quad [1]$$

(ii) the horizontal component of F .

$$\text{horizontal component} = \dots\dots\dots\dots\dots \text{N} \quad [1]$$

(b) By taking moments about P, determine the weight W of the rod.

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

- (c) Explain why the wall must exert a force on the rod at P.

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..... [1]

- (d) On Fig. 3.1, draw an arrow to represent the force acting on the rod at P. Label your arrow with the letter S. [1]

