3 A sign PQ and its support stand are in equilibrium on a horizontal surface, as shown in Fig. 3.1.

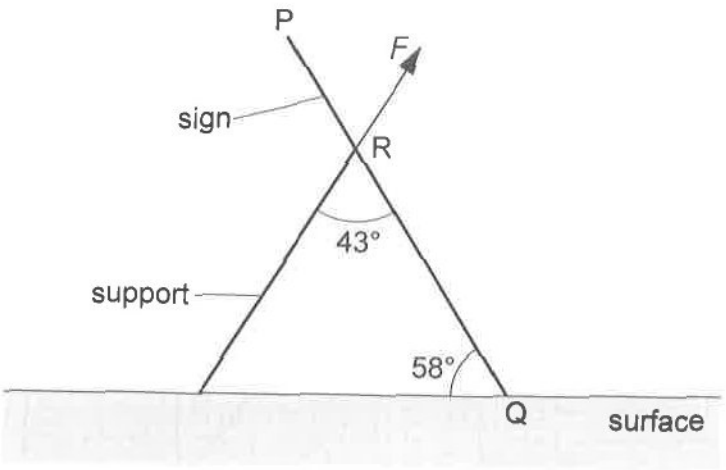

Fig. 3.1 (not to scale)

The sign is uniform and has a mass of 2.3 kg. The sign is at an angle of 58° to the surface.

The support joins to the sign at point R where PR = $\frac{PQ}{3}$. The support is at an angle of 43° to the sign and exerts a force *F* on the sign. Force *F* is parallel to the support.

(a) By taking moments about point Q, determine the force *F*.

F = ... N [3]

(b) Explain why the force acting on the sign at Q is not vertical.

.....

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..... [2]

[Total: 5]