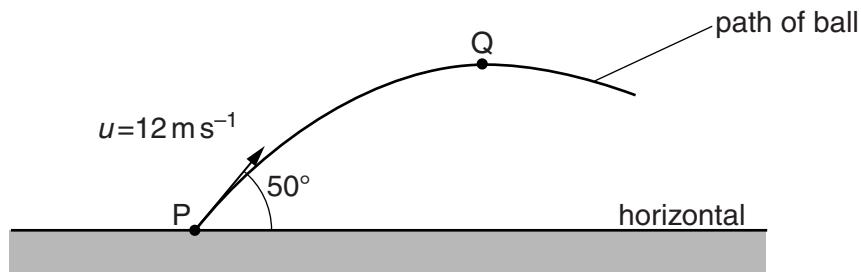


- 2 A ball is thrown from a point P with an initial velocity  $u$  of  $12\text{ms}^{-1}$  at  $50^\circ$  to the horizontal, as illustrated in Fig. 2.1.



**Fig. 2.1**

The ball reaches maximum height at Q.

Air resistance is negligible.

(a) Calculate

(i) the horizontal component of  $u$ ,

$$\text{horizontal component} = \dots \text{ms}^{-1} [1]$$

(ii) the vertical component of  $u$ .

$$\text{vertical component} = \dots \text{ms}^{-1} [1]$$

(b) Show that the maximum height reached by the ball is 4.3 m.

[2]

(c) Determine the magnitude of the displacement PQ.

$$\text{displacement} = \dots \text{m} [4]$$

[Total: 8]

[Turn over]