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

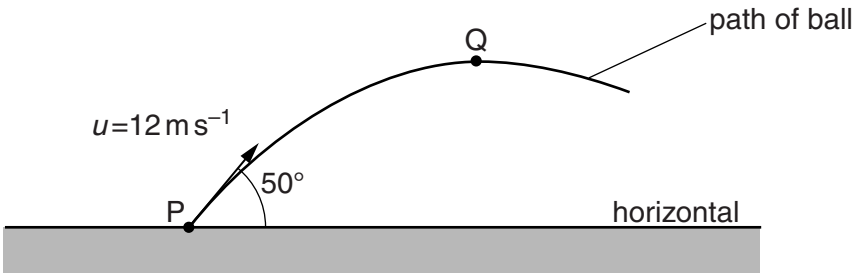

Fig. 2.1

The ball reaches maximum height at Q.

Air resistance is negligible.

(a) Calculate

(i) the horizontal component of u,

horizontal component = ... $m\,s^{-1}$ [1]

(ii) the vertical component of u.

vertical component = ... $m\,s^{-1}$ [1]

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

[2]

(c) Determine the magnitude of the displacement PQ.

displacement = ... m [4]

[Total: 8]