2

(a)

A student throws a ball, at velocity *u*, towards a hoop, as shown in Fig. 2.1. The dotted curve represents the path the ball makes. It takes 1.1 s from the point of release to reach the hoop.

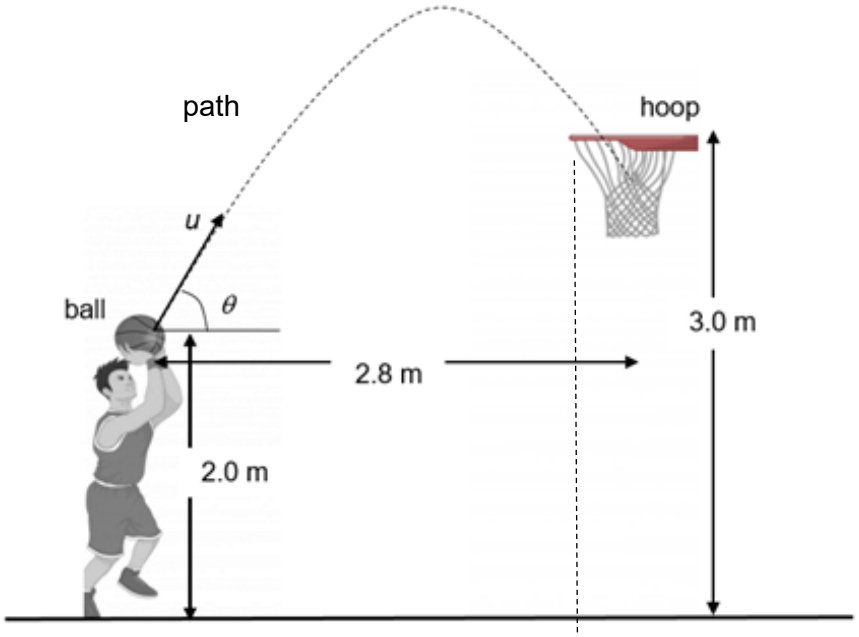

Fig. 2.1

(i)

Determine the vertical component of the initial velocity.

vertical component of initial velocity = ... m s^{-1}

[2]

(ii)

Determine the launch angle θ.

θ = …….. °

[3]

(b)

The ball is now thrown in a medium of significant air resistance with the same initial speed and direction. Sketch the new path of the ball in Fig. 2.1.

[2]

[Total: 7]