2 **(a)** Define velocity.

....

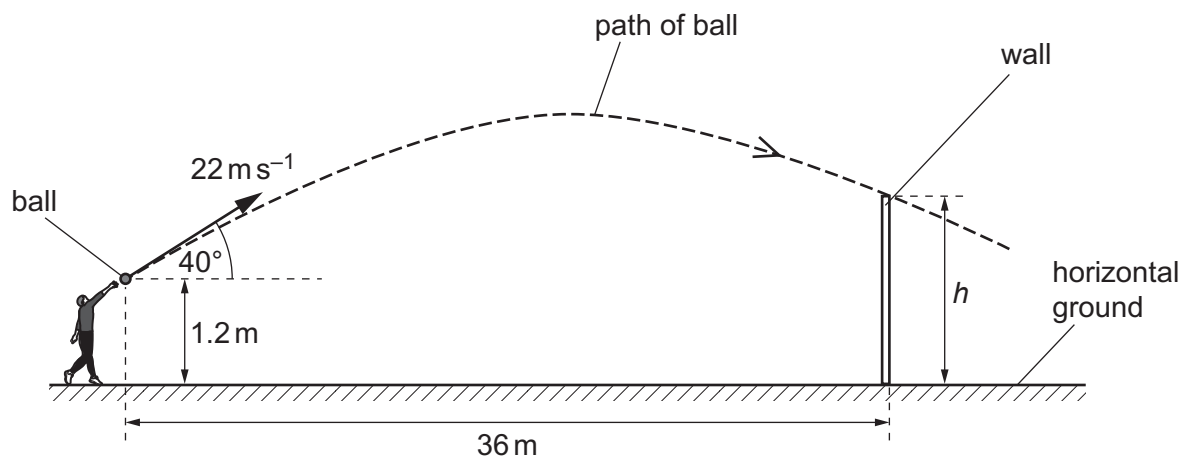... [1]

(b) A student throws a ball over a vertical wall of height *h*, as shown in Fig. 2.1.

Fig. 2.1 (not to scale)

The ball leaves the hand of the student at a height of 1.2 m above the horizontal ground.
The ball has an initial velocity of 22 m s⁻¹ at an angle of 40° to the horizontal.
The wall is a horizontal distance of 36 m from where the student releases the ball.

Air resistance is negligible.

(i) Determine the time taken for the ball to reach the wall.

time taken = ... s [2]

(ii) Calculate the vertical component u of the initial velocity of the ball.

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

(iii) The ball just goes over the wall.

Calculate the height h of the wall.

h = ...m [3]