Answer **all** the questions in the space provided.

1 **(a)** A ball leaves the edge of a table with a horizontal velocity v, as shown in Fig. 1.1.

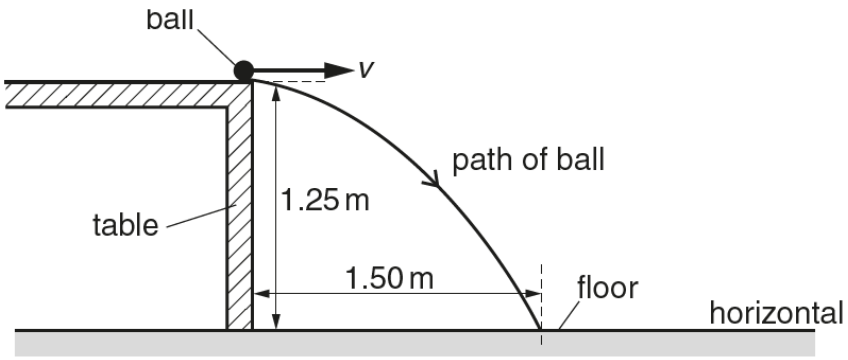

Fig. 1.1

The height of the table is 1.25 m. The ball travels a distance of 1.50 m horizontally before hitting the floor.

Air resistance is negligible.

Calculate, for the ball,

(i) the horizontal velocity v as it leaves the table,

v = ... m s^{-1} [2]

(ii) the velocity just before it hits the floor.

velocity = ... m s^{-1} [2]

(b) A second ball leaves the edge of the table with a horizontal velocity $2v$.

(i) State and explain whether the time taken to hit the floor is the same or different compared to the first ball.

.....

.....[2]

(ii) Describe the variation of the vertical component of velocity if air resistance is not negligible.

.....

.....[2]

[Total: 8]