3. A ball is thrown vertically upwards with speed $20\,\text{m s}^{-1}$ from a point A, which is h metres above the ground.

The ball moves freely under gravity until it hits the ground 5 s later.

(a) Find the value of h.

(3)

A second ball is thrown vertically downwards with speed $w\,\text{m s}^{-1}$ from A and moves freely under gravity until it hits the ground.

The first ball hits the ground with speed $V\,\text{m s}^{-1}$ and the second ball hits the ground with speed $\frac{3}{4}V\,\text{m s}^{-1}$

(b) Find the value of w.

(5)

(Total for Question 3 is 8 marks)