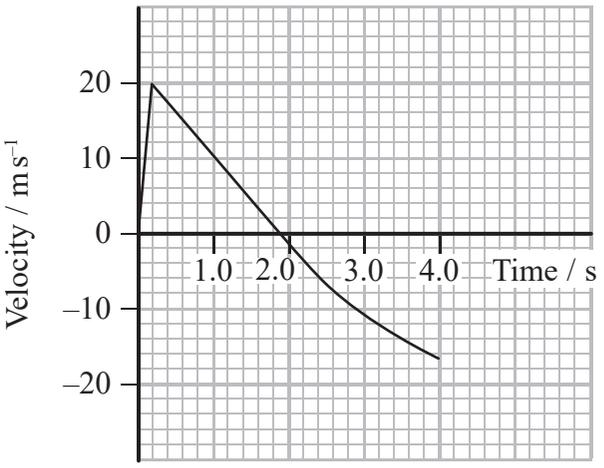
14 A physics class made a toy rocket. A drinks bottle was partially filled with water and inverted over a valve. An air pump delivered air to the bottle until the pressure forced the bottle from the valve and the water was ejected from the bottle at high speed.

A velocity-time graph for the bottle for the first 4 s after take-off is shown.



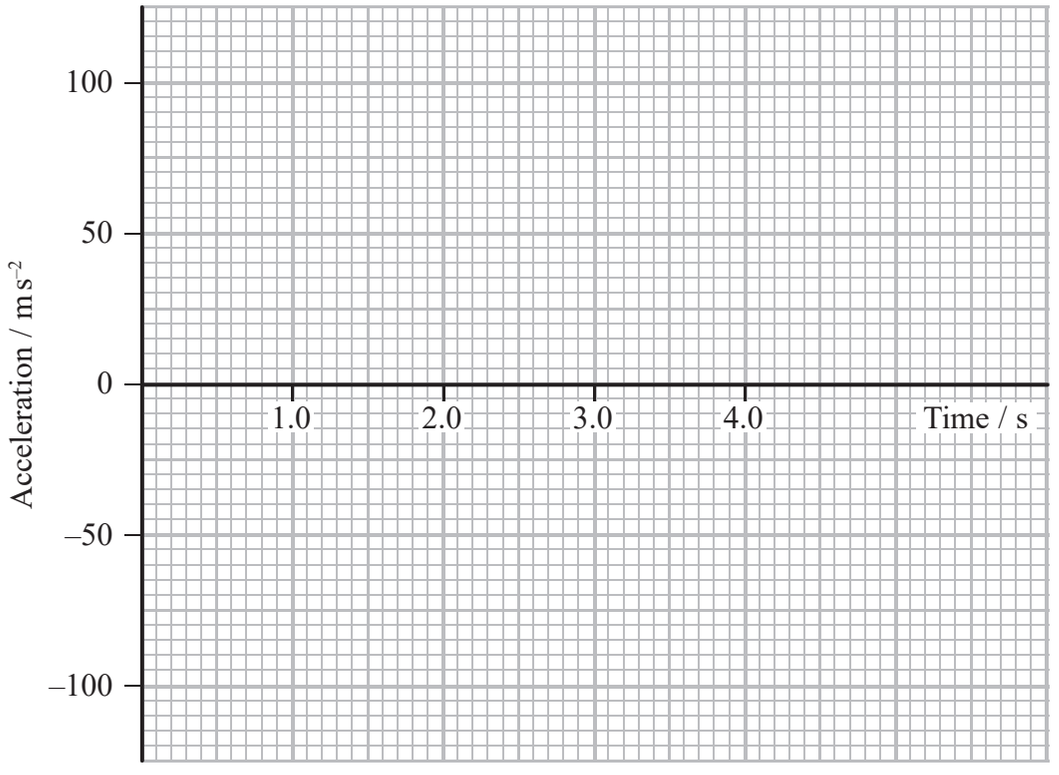
(a) Determine the height to which the rocket travelled.

(2)

Height = ...

(b) Sketch the corresponding acceleration-time graph on the axes below.

(5)



(Total for Question 14 = 7 marks)