1 A golfer is practising his tee shot from a platform 7.0 m off the ground as shown in Fig. 1.1. The golf ball was launched at a speed of 50 m s^{-1}, 40° above the horizontal. Assume air resistance is negligible.

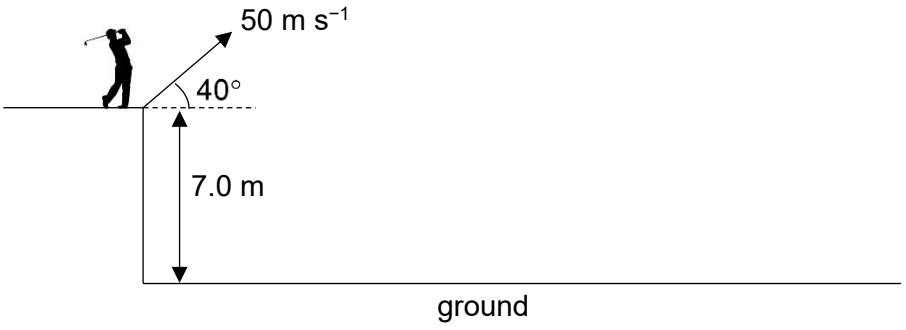

Fig 1.1

(a) Determine the maximum height above the ground attained by the ball.

maximum height = ... m [3]

(b) Calculate the time of flight of the ball.

time of flight = ... s [2]

(c) A golf ball typically bounces a few times after a tee shot as shown in Fig. 1.2. The first time the ball touches the ground is indicated by A and the fourth time it touches the ground is indicated by B. Take the upward direction as positive.

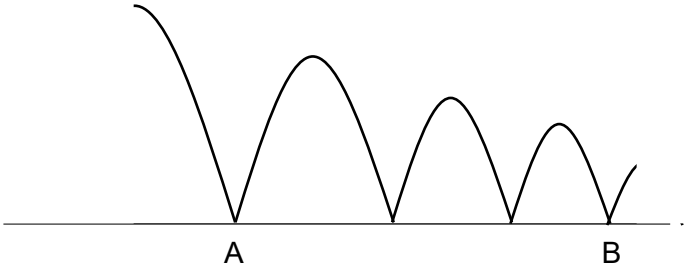

Fig. 1.2

Sketch, on Fig. 1.3, a graph to show the variation with time of the vertical velocity of the ball between from the instant it leaves A to the instant it reaches B.

Fig. 1.3

[2]

[Total: 7]