Épreuve de section européenne

1 General knowledge

Give a few examples of random experiments and probability distributions.

2 Document

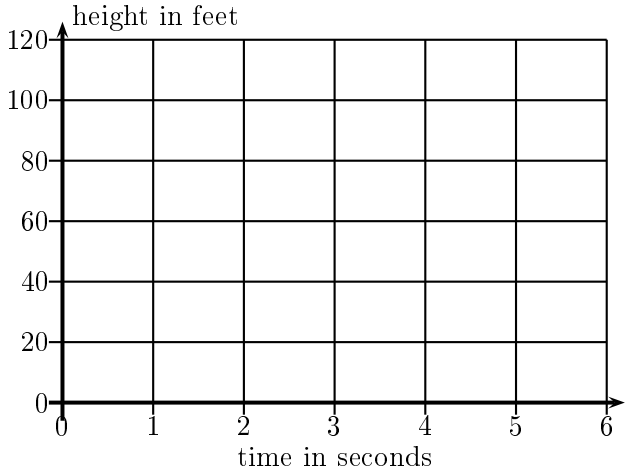
The Golf shot

The height (in feet) above the ground of a golf ball depends on the time t (in seconds) it has been in flight. A golfer has hit a shot off the tee that has a height given approximately by

$$h(t) = 80t - 16t^2.$$

3 Questions

1. Sketch a graph of this function on a coordinate graph alike this one.



2. Answer the following questions :

- **a.** What time does the golf ball land on the ground ?
- **b.** What is the maximum height of the ball ?
- **c.** How long after it is hit does the ball reach this height ?
- **d.** At what time is the ball first 60 feet in the air ?
- **e.** Is it 60 feet high a second time ? If so, when ?

3. Suppose that the same golfer hit a second ball from a tee that was elevated 20 feet above the fairway.

- **a.** Write a new function that describes the new path of the ball.
- **b.** Sketch the graph of this new function on the same coordinate graph.
- **c.** What time will the second golf ball land on the ground ?

From *Mathematical Assessment*, by W.E. Campbell, NCTM.