FOUNDATION & HIGHER

HIGHER EXTENDS

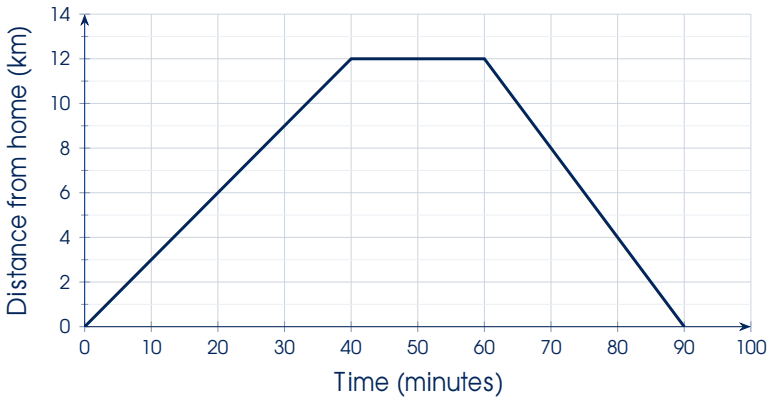
Name ..... Class .....

A14: Graphs in real contexts

Plot and interpret graphs, including non-linear graphs, in real contexts

20 marks · 25 minutes · Non-calculator

1) Ella cycles from home to a lake, rests, then cycles home. The graph shows her journey.



(a) How long did Ella rest?

..... minutes

(1)

(b) Find her speed on the way to the lake, in

km/h.

..... km/h

(2)

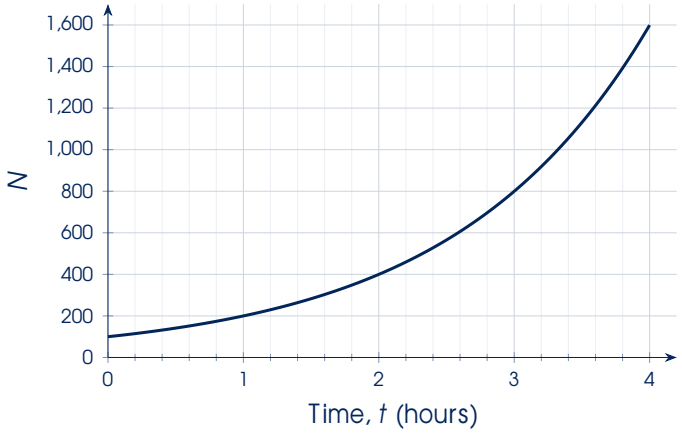
(c) Find her speed on the way home, in km/h.

..... km/h

(1)

[Question 1: 4 marks]

2) The number of bacteria, N, after t hours is shown on the graph.



(a) How many bacteria were there at the start?

.....

(1)

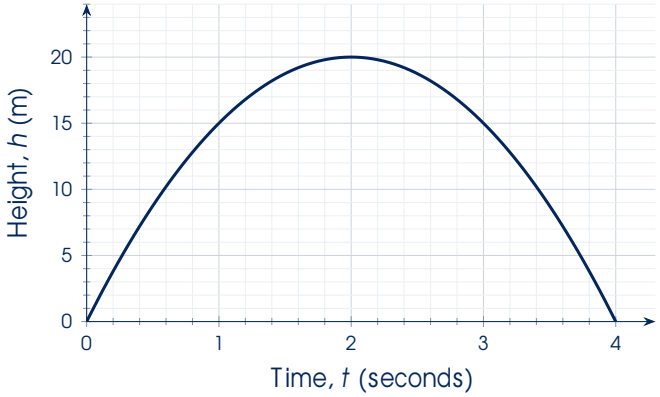
(b) Read from the graph the time when there were 1000 bacteria.

..... hours

(1)

[Question 2: 2 marks]

3) A ball is thrown straight up. Its height, h metres, after t seconds is shown.



(a) What is the greatest height of the ball?

..... m

(1)

(b) At what times is the ball 15 m high?

..... s

(2)

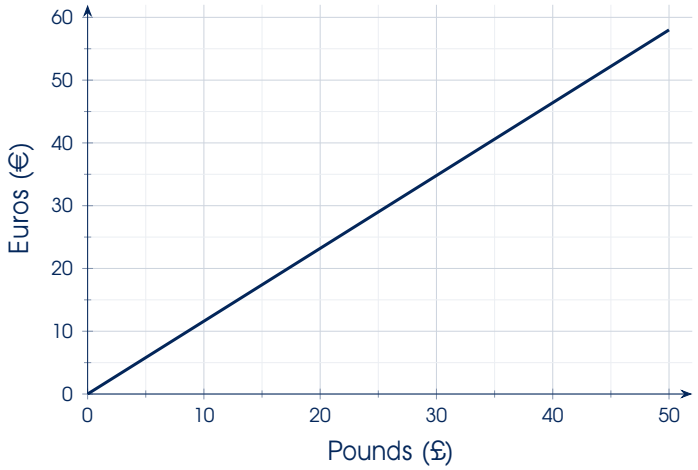
(c) For how long is the ball in the air?

..... s

(1)

[Question 3: 4 marks]

4) The graph converts between pounds (£) and euros (€).



(a) Change £30 into euros.

€ .....

(1)

(b) Change €40 into pounds.

£ .....

(1)

(c) Use the graph to change £200 into euros.

€ .....

(2)

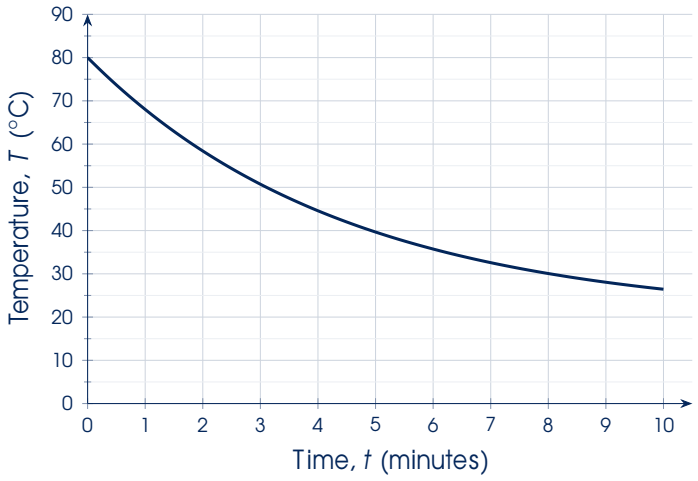
(d) How many euros is £1 worth?

€ .....

(1)

[Question 4: 5 marks]

5) A cup of tea cools down. The graph shows its temperature, T °C, after t minutes.



(a) What was the temperature at the start?

..... °C

(1)

(b) What was the temperature after 5 minutes?

..... °C

(1)

(c) After how many minutes was the temperature 50 °C?

..... minutes

(1)

(d) The temperature levels off. Estimate the temperature of the room.

..... °C

(1)

[Question 5: 4 marks]

6) A runner's distance–time graph is a straight line from $(0,0)$ to $(50,400)$, where time is in seconds and distance is in metres. Find the runner's speed.

..... m/s

[Question 6: 1 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	(a) 20 (b) 18 (c) 24	(a) B1. (b) 12 km in $\frac{2}{3}$ hour (M1); A1. (c) 12 km in $\frac{1}{2}$ hour (B1).
2	(a) 100 (b) about 3.3	B1 each. (b) accept 3.2 to 3.4.
3	(a) 20 (b) 1 and 3 (c) 4	(a) B1. (b) B1 each. (c) B1.
4	(a) about 35 (b) about 34.5 (c) about 232 (d) 1.16	(a) 34 to 36 (B1). (b) 34 to 35 (B1). (c) e.g. 4×(£50 → €58) (M1); 228 to 236 (A1). (d) 1.14 to 1.18 (B1).
5	(a) 80 (b) about 40 (c) about 3.1 (d) 20	(a) B1. (b) 38 to 42 (B1). (c) 2.9 to 3.3 (B1). (d) B1.
6	8	B1.