

Real Life Graphs

Please write clearly in block capitals

Forename:

Surname:

Materials

For this paper you must have:

- mathematical instruments



You **can** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

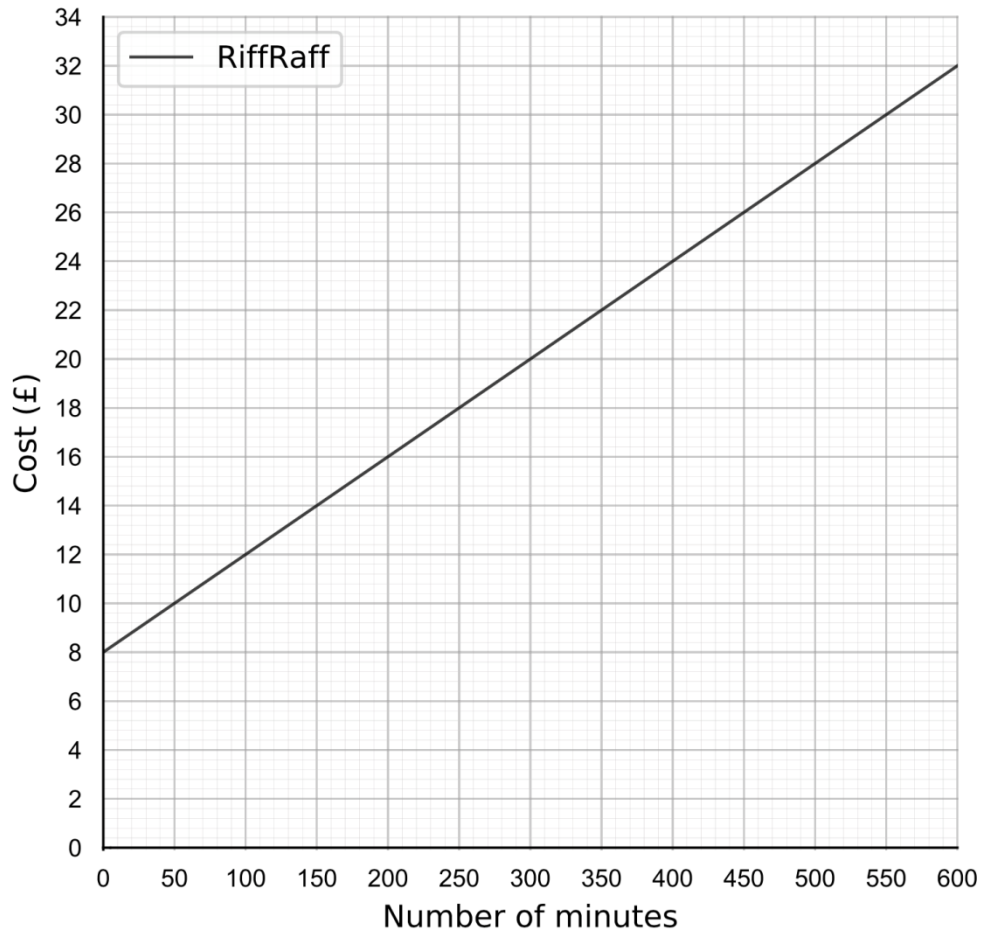
Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

- 1 The cost-per-minute of call time used on a monthly phone contract for RiffRaff is displayed in the graph below. (Level 5)



- 1(a) A customer uses 150, 300, and 50 minutes in three consecutive months.
What is the total cost of the contract over the three months?

[3 marks]

Answer _____

- 1(b)** Using the graph, find an equation for the total cost per month, C , in terms of minutes used M .

[1 mark]

Answer _____

- 1(c)** What does the y-intercept in your equation represent?

[1 mark]

Answer _____

- 1(d)** A rival company, Purple, has a monthly contract that follows the formula below:

$$C = 12 + 0.02M$$

Where C is the cost in pounds, and m in the number of minutes used.

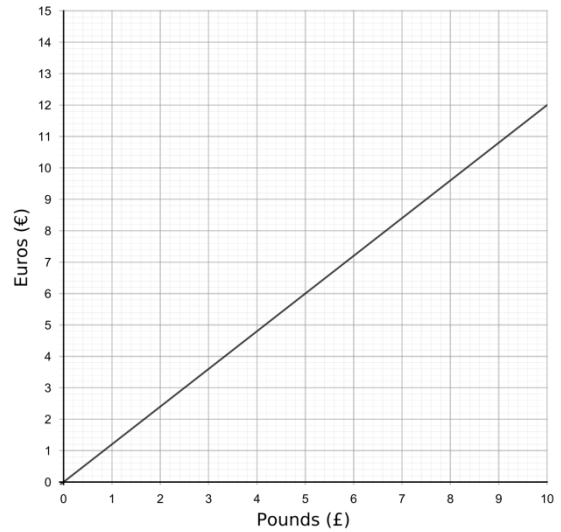
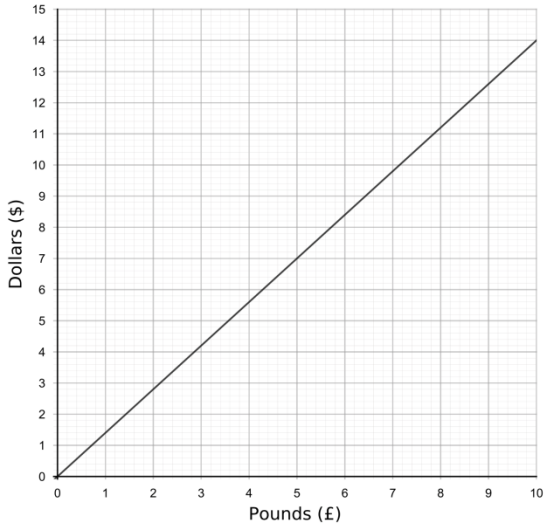
On the same axes, draw a graph and determine the price and number of minutes where both contracts have the same value.

[3 marks]

Answer _____

Turn over for next question

2 The conversion graphs below show the relationship between the value of the pound and dollar, and the value of the pound and euro. (Level 5)



2(a) After a holiday Ben has \$441 and €318 remaining.
What is the total value of Ben's remaining money in pounds?

[3 marks]

Answer _____

2(b) Convert \$252 into euros.

[2 marks]

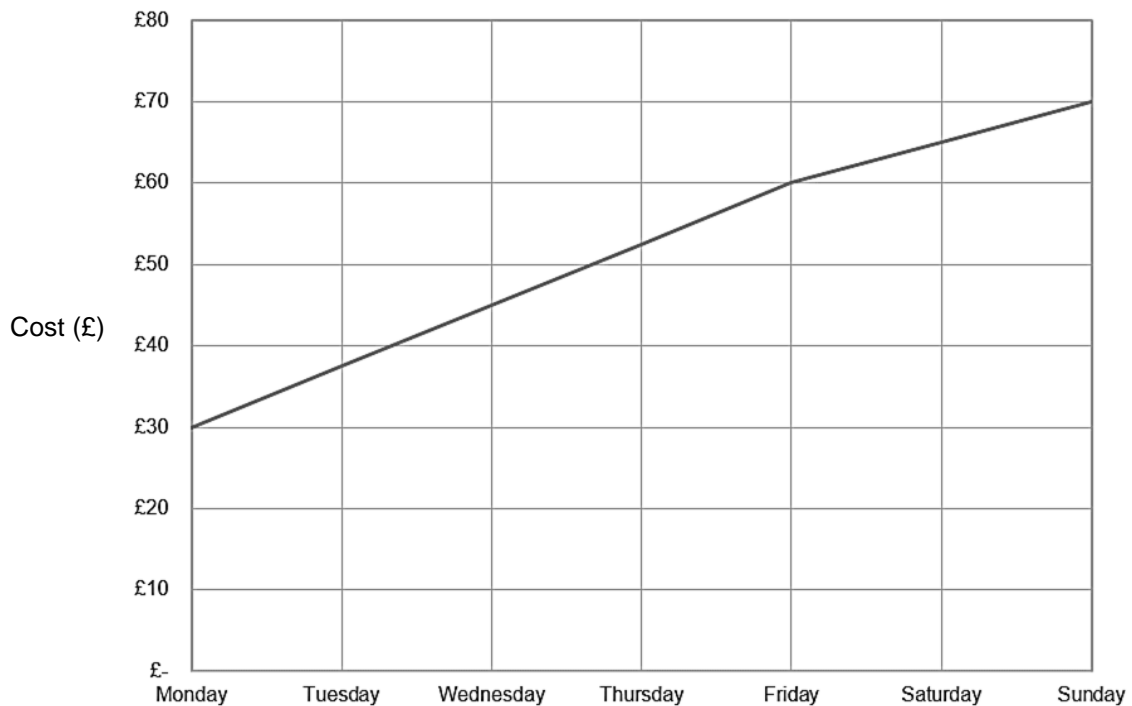
Answer _____

Turn over for next question

- 3 The table shows the costs of bicycle hire from two companies, WeBike and Wheely Good. (Level 5)

	Initial Payments	Additional daily costs	
		Weekdays	Weekends
WeBike	£20	£5.00	£15.00
Wheely Good	£30.00	£7.50	£5.00

The total cost of the bicycle from Wheely Good has been plotted on the graph below.



Plot the total cost for WeBike on the graph, and **evaluate** which company is better value for money for a week-long bicycle hire.

[4 marks]

Answer _____

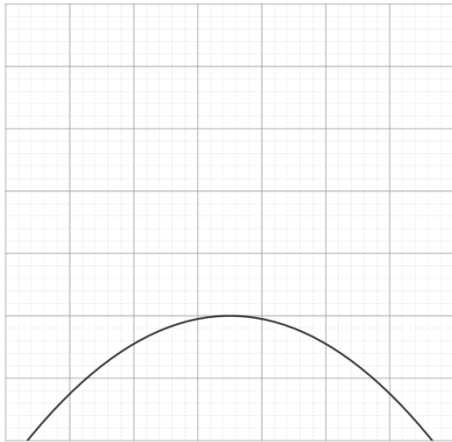
Turn over for next question

Turn over ►

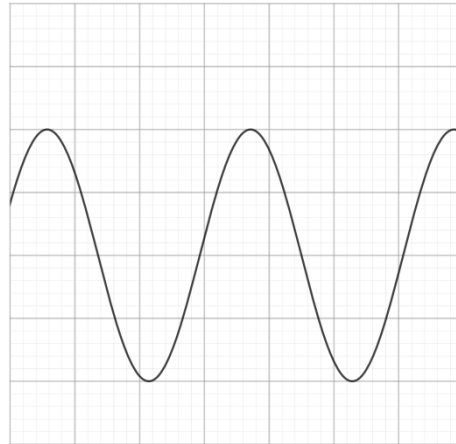
4 Describe each of the graphs below, making sure to consider the gradient, any turning points and the shape of the graph. (Level 6)

Additionally, suggest what the graph could represent.

Graph A



Graph B



4(a) Graph A:

[2 marks]

Answer _____

4(b) Graph B:

[2 marks]

Answer _____



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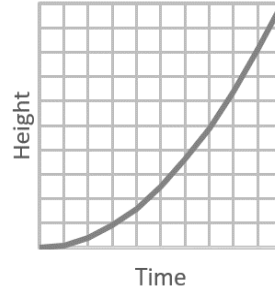
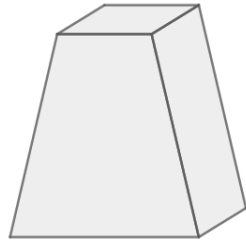
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5

The diagram shows a container that is filled with water at a constant rate.

(Level 6)

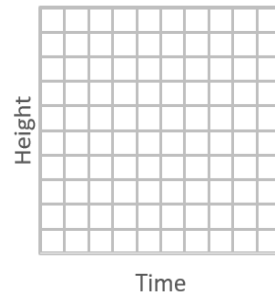
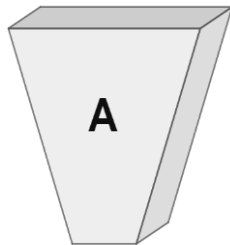
The graph shows the height of the water increasing until the container is full.



Complete the graph for each of the three containers, A, B and C.

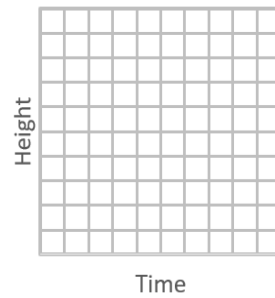
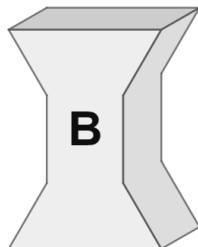
In each case the rate at which water flows into the container is constant.

5(a)



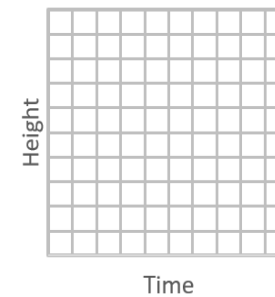
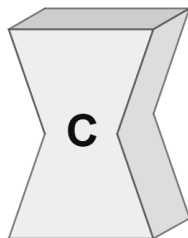
[1 mark]

5(b)



[1 mark]

5(c)



[1 mark]

End of questions

END