

Answer **all** questions in the spaces provided.

1 Use approximations to estimate the value of $\frac{52.3 \times 97.8}{19.4}$

You **must** show your working.

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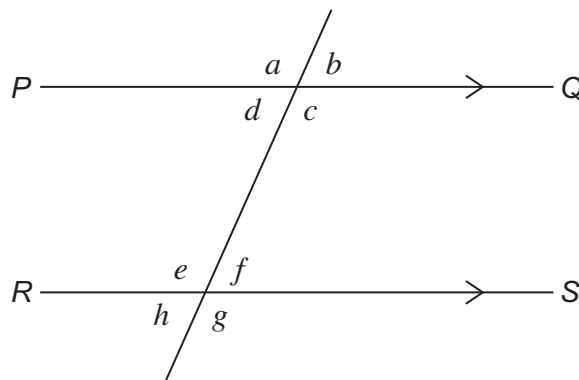
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Answer (2 marks)

2 On the diagram *PQ* is parallel to *RS*.



2 (a) Which angle is vertically opposite to angle *a*?

Answer (1 mark)

2 (b) Which angle is alternate to angle *f*?

Answer (1 mark)

2 (c) Which angle is corresponding to angle *c*?

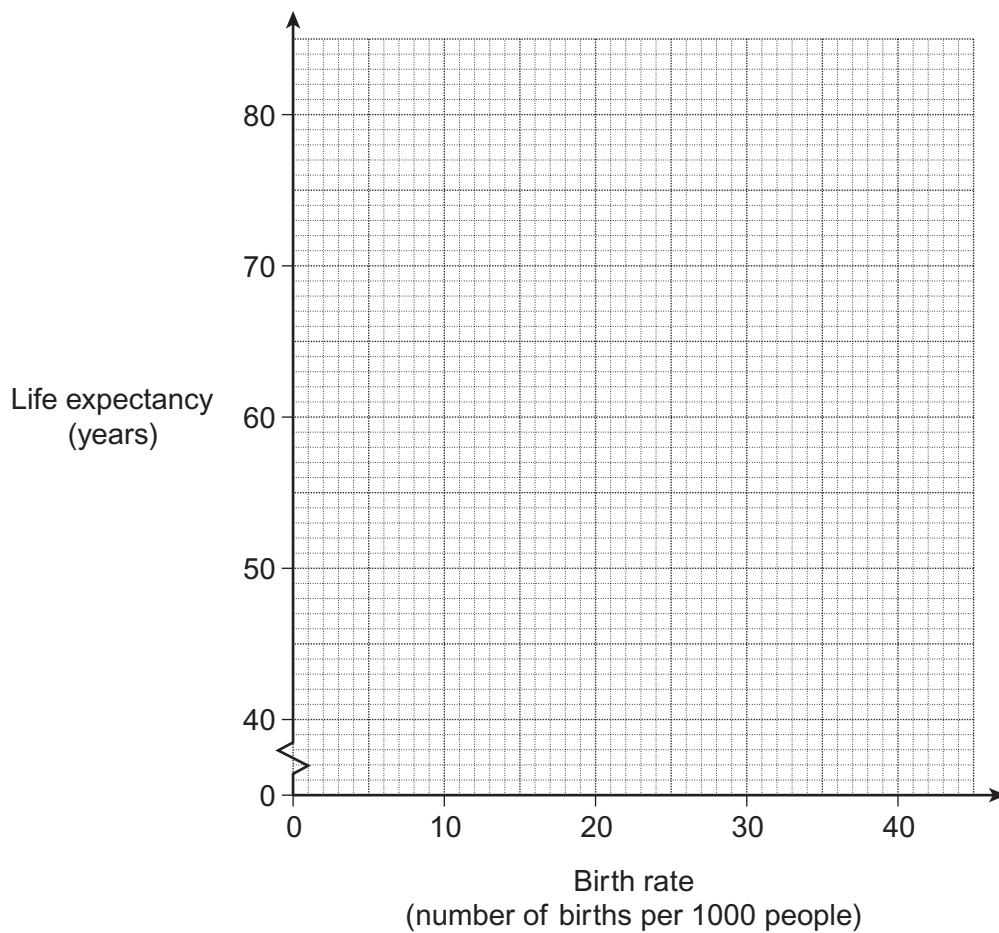
Answer (1 mark)



- 3 The birth rate and the life expectancy for seven countries are shown in the table.

Country	Birth rate (number of births per 1000 people)	Life expectancy (years)
Chile	15	77
Egypt	22	72
Gambia	39	59
India	22	69
Japan	8	82
Nepal	30	64
United Kingdom	11	79

- 3 (a) Plot the data as a scatter graph on the grid below.



(2 marks)



3 (b) Describe the strength and type of correlation.

Answer Strength

Type of correlation

(2 marks)

3 (c) Draw a line of best fit on your scatter graph.

(1 mark)

3 (d) Use the line of best fit to estimate the life expectancy for Turkey whose birth rate is 16 births per 1000 people.

Answer years

(1 mark)

3 (e) Why might it **not** be reliable to use the line of best fit to estimate the life expectancy for Niger whose birth rate is 50 births per 1000 people?

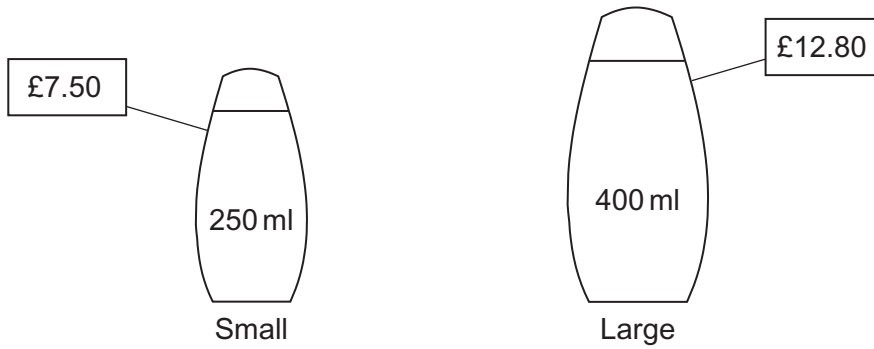
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(1 mark)

Turn over for the next question



4 A chemist sells a brand of shampoo in two different sizes.



Which is the better value?
You **must** show your working.

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Answer (3 marks)

5 Jenny works 8 hours each weekend.
She earns £4.50 per hour.
She saves one-third of her earnings.

She wants to buy an iPod costing £104.95

How many weeks will it take her to save enough to buy this iPod?

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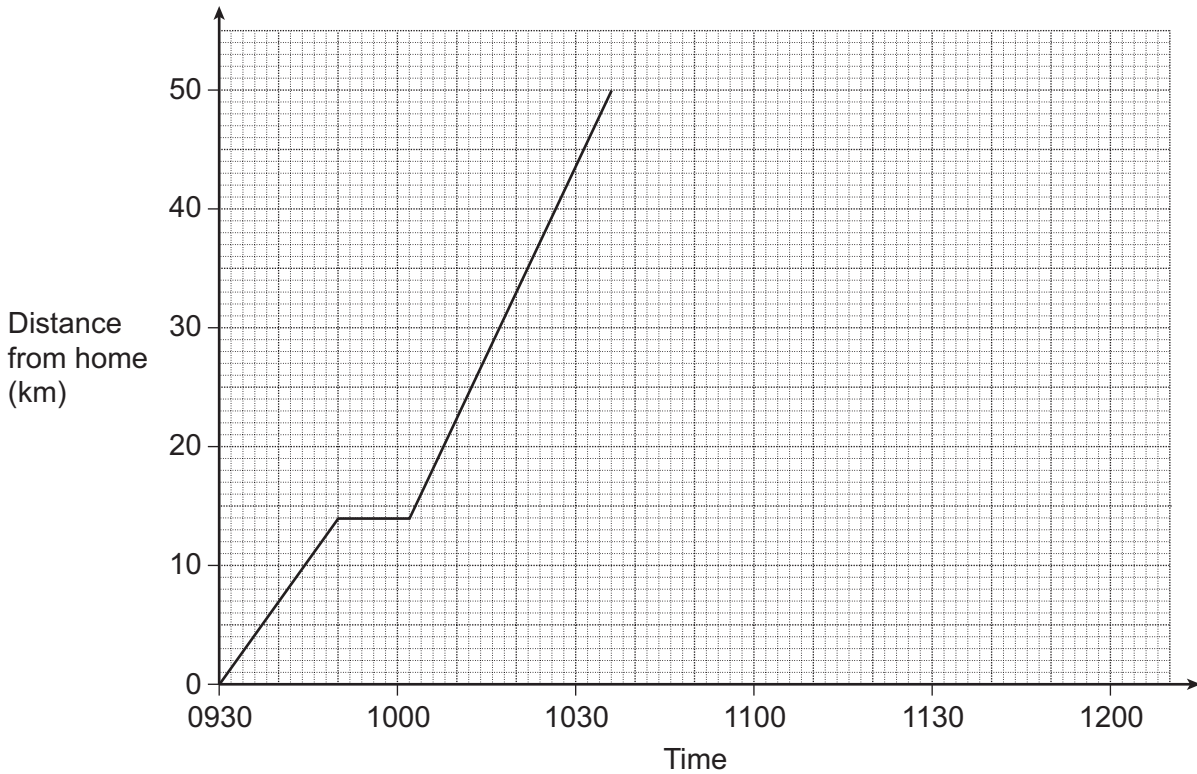
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Answer (4 marks)



6 Marcus leaves home at 0930 to drive to Leeds, 50 km away. He stops at a petrol station on his way to Leeds. The graph shows his journey to Leeds.



6 (a) How far has he gone before he stops at the petrol station?

Answer km (1 mark)

6 (b) How many minutes is he at the petrol station?

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Answer minutes (1 mark)

6 (c) Marcus stays in Leeds until 1110. He leaves Leeds and arrives home at 1150, without stopping on the way.

6 (c) (i) Complete the graph.

(1 mark)

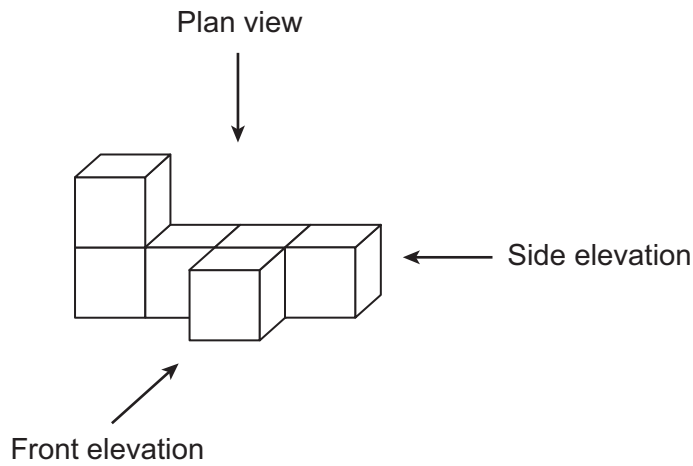
6 (c) (ii) Calculate his average speed for the return journey. Give your answer in kilometres per hour.

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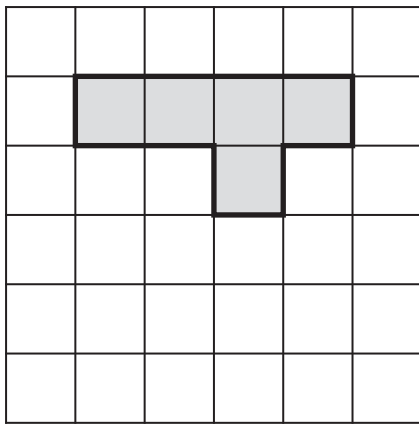
Answer km/h (2 marks)



7 This solid is made from centimetre cubes.



The plan view of the solid is drawn on the grid.



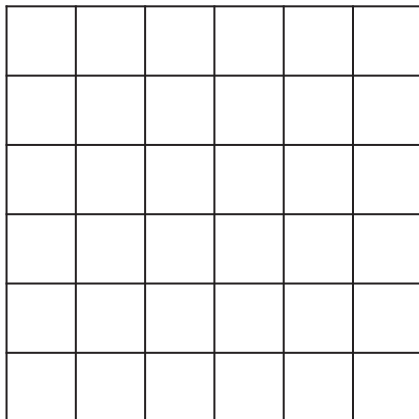
On the grids below,

7 (a) (i) draw the front elevation of the solid

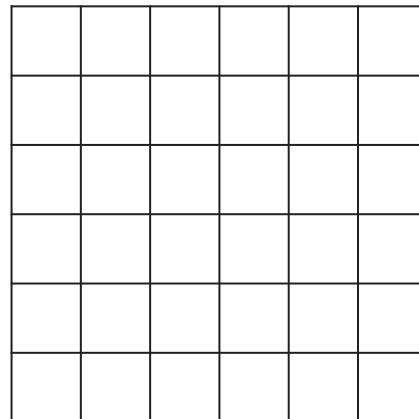
(1 mark)

7 (a) (ii) draw the side elevation of the solid.

(1 mark)



Front elevation.



Side elevation.



7 (b) What is the total surface area of the solid?
State the units of your answer.

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Answer (3 marks)

8 (a) Solve $10(w - 1) = 15$

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Answer $w =$ (3 marks)

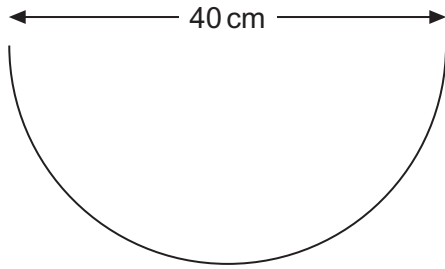
8 (b) Solve $5t + 12 = 3(t + 5)$

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Answer $t =$ (3 marks)

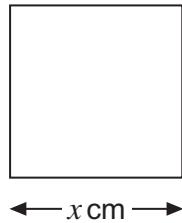


9 A wire is in the shape of a semi-circle of diameter 40 cm.



Not drawn accurately

The wire is bent into the shape of a square of side x cm.



Not drawn accurately

Work out the value of x .
Use $\pi = 3.14$ in your calculations.

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Answer cm (4 marks)



10

Harry is going to buy a new car.
Here is some information about the running costs of the car.

Average amount of fuel used per 100 km	5 litres
Average cost of fuel per litre	£1.20
Road Tax and Insurance, per year	£450
Total servicing costs for three years	£500

Harry drives 30 000 kilometres a year, on average.
He plans to keep the car for three years.

What is Harry's expected total running costs for the three years?
You **must** show your working.

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Answer £ (5 marks)



11 A bag contains only blue and yellow discs.

Lucy is doing an experiment to find out how many blue discs there are. She takes out a disc, at random, and records its colour. She then puts it back in the bag. Lucy does this 200 times altogether.

The table shows the total number of blue discs and the relative frequency of blue after different numbers of trials.

Number of trials	Total number of blue discs	Relative frequency of blue
10	5	0.5
20	9	0.45
50		0.4
100	31	0.31
200	60	0.3

11 (a) What was the total number of blue discs after 50 trials?

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Answer (2 marks)

11 (b) There are 40 discs in the bag.

Estimate the number of blue discs in the bag. You **must** show your working.

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Answer (2 marks)

