

Surname	Centre Number	Candidate Number
Other Names		0



GCSE

4353/01



W15-4353-01

MATHEMATICS (UNITISED SCHEME)
UNIT 3: Calculator-Allowed Mathematics
FOUNDATION TIER

A.M. MONDAY, 19 January 2015

1 hour 30 minutes

ADDITIONAL MATERIALS

A calculator will be required for this paper.

A ruler, a protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

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

Take π as 3.14 or use the π button on your calculator.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

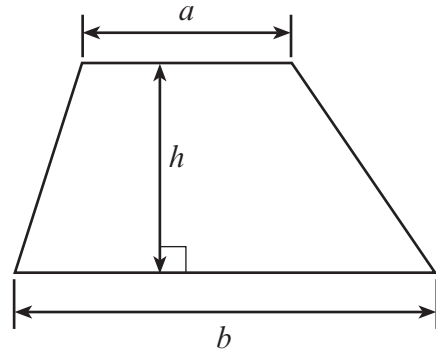
You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question 9.

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	8	
2.	2	
3.	2	
4.	2	
5.	5	
6.	6	
7.	4	
8.	6	
9.	6	
10.	2	
11.	6	
12.	2	
13.	3	
14.	5	
15.	2	
16.	6	
17.	3	
18.	3	
19.	4	
20.	3	
Total	80	

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Formula List

Area of trapezium = $\frac{1}{2}(a + b)h$



Volume of prism = area of cross-section \times length



1. On Thursday, Tom went to the cinema with some friends. The bill for the group is shown below.

(a) Complete the bill. [4]

Item	Cost
5 cinema tickets at £5.30 per ticket	£
3 drinks at 99p each	£
500g of sweets at 72p per 100g	£
Total	£

(b) Tom pays the bill with two twenty pound notes.
How much change should he be given? [2]

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(c) Every Tuesday, there is a special offer that gives two cinema tickets for the price of one. How much would the group have saved if they had gone to the cinema on Tuesday instead of Thursday? [2]

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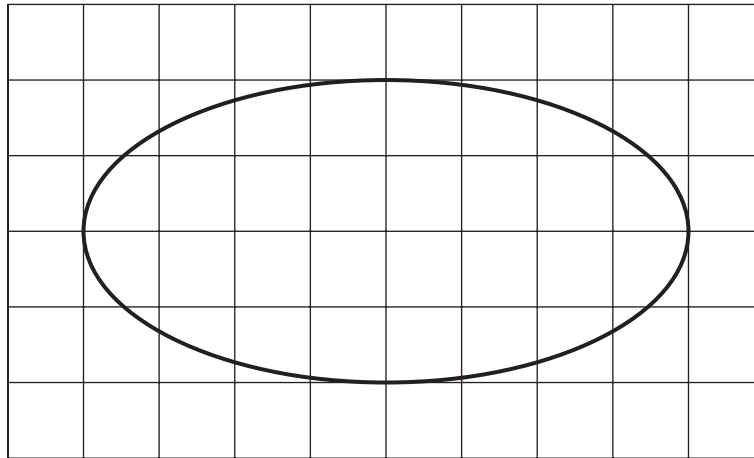
2. (a) Write 7236 correct to the nearest 10. [1]

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(b) Write 36.921 correct to the nearest whole number. [1]

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3. A shape, called an ellipse, has been drawn on a grid. Each square on the grid has an area of 1 cm^2 .



Estimate the area of the ellipse.

[2]

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4. Caleb has these coins.



Manon has these coins.



Caleb gives Manon some coins so that they each have the same amount of money.

Which coins does Caleb give to Manon?

[2]

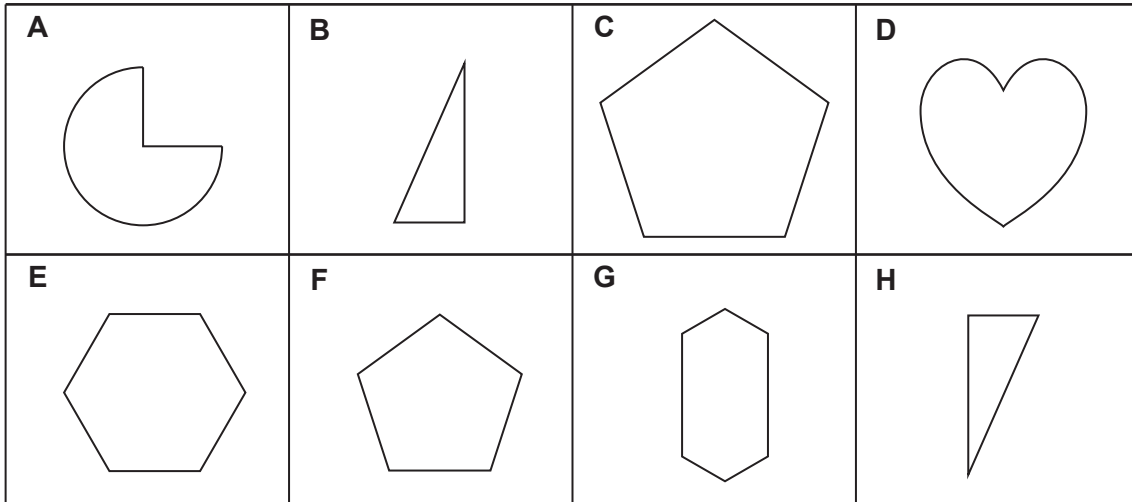
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5. The pictures show eight shapes. Some of these shapes are regular polygons, some are irregular polygons and some are not polygons.



- (a) In the table below, write the letter of each shape in the correct group. Each shape is in only one group.

[3]

REGULAR POLYGON	IRREGULAR POLYGON	NOT A POLYGON

- (b) From the shapes above:

- (i) Write down the letters of two shapes that are congruent. [1]

Two congruent shapes are and

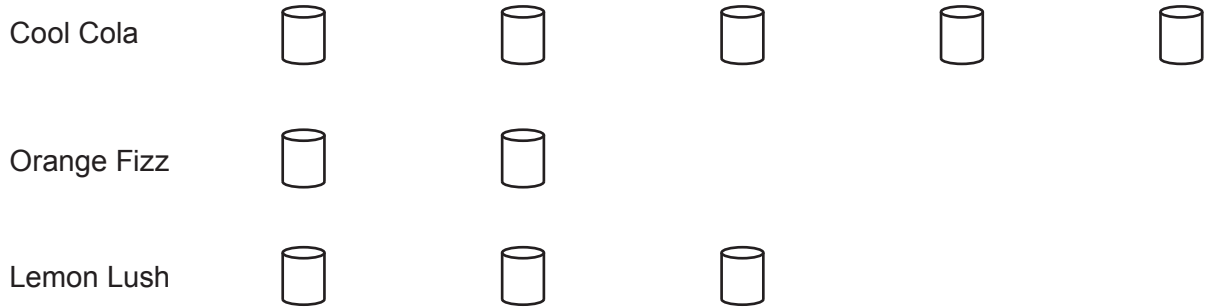
- (ii) Write down the letters of two shapes that are similar but not congruent. [1]

..... and are similar but not congruent.

6. (a) Jo drew a pictogram to show information about the drinks sold from a vending machine on a Monday afternoon.

The key for the pictogram is incomplete.

KEY  = ?



Jo knew that 80 drinks were sold in total that afternoon.

How many drinks of Lemon Lush were sold that afternoon?

[2]

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- (b) On Tuesday, Jo recorded the sales of drinks that afternoon.

Drink	Number of drinks sold
Cool Cola	24
Orange Fizz	18
Lemon Lush	7

Explain why the key that Jo used for Monday's sales of drinks would not be suitable for him to **clearly represent** Tuesday's sales of drinks in a pictogram. [1]

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- (c) A **different symbol** is to be used to represent 4 drinks in a new key.

Use this new key to draw a pictogram to represent the drinks sold on Tuesday.

[3]

New Key:  = 4 drinks

Cool Cola	
Orange Fizz	
Lemon Lush	

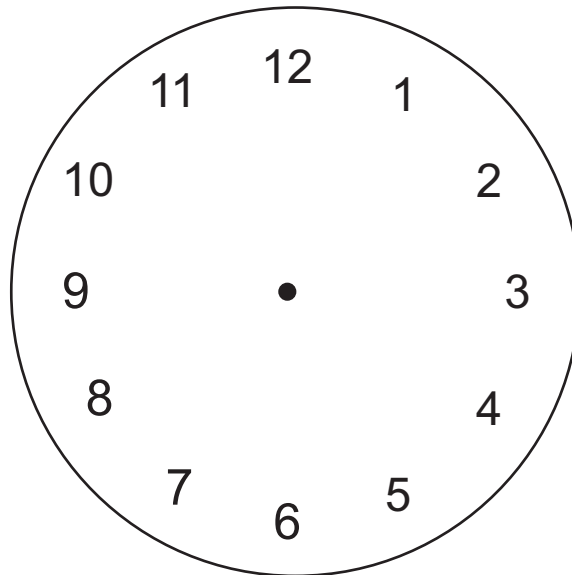
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7. Amira watched three episodes of a TV series that she had recorded.

She started watching the first episode at 16:40.

- (a) Draw hands on the clock below to show the time 16:40.

[1]



- (b) Amira watched three episodes, each 50 minutes long.

She took a break between each episode. The breaks were of equal length.

She finished watching the third episode at 19:40.

How long was the break between each episode?

[3]

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8. (a) The table below shows the number of smoothies sold in a school café on 5 days in a particular week.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Number of smoothies sold	54	38	65	58	80

- (i) Find the median number of smoothies sold per day. [1]

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- (ii) Work out the mean number of smoothies sold per day. [3]

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- (iii) Work out the range of the number of smoothies sold per day. [1]

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- (b) Milkshakes are also sold in the school café.
 In the same week, the mean number of milkshakes sold per day was the same as the mean number of smoothies sold per day.
 The range of the number of milkshakes sold per day was 4.

Explain the meaning of the difference in values for the range of the daily sales of smoothies and milkshakes. [1]

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9. *You will be assessed on the quality of your written communication in this question.*

Mr Jones is organising a school trip, travelling by bus.

Each bus can carry 50 passengers.
There will be 240 students going on the trip.
For every 15 students, there must be one adult.

How many buses will Mr Jones need to book?

You must show all your working.

[6]

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10. Find the value of $\frac{5 \cdot 2^2 - \sqrt{46}}{4}$, giving your answer correct to 1 decimal place. [2]

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11. Callum bought 80 baseball caps for £3.50 each, to sell on a market stall.

He sold $\frac{2}{5}$ of the 80 baseball caps for £5 each.

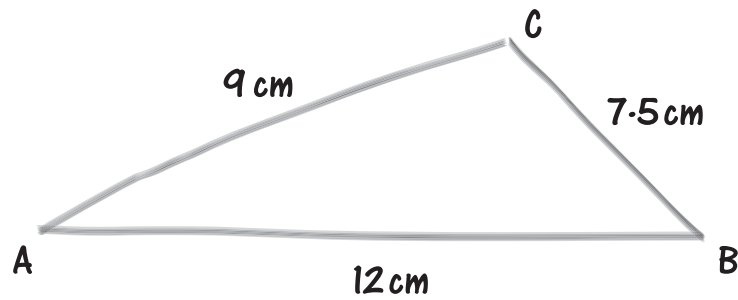
He wants to sell all the baseball caps and does not want to make a loss.

What is the least amount he should charge for each remaining cap to avoid making a loss?

You must show all your working. [6]

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12. The diagram below shows a freehand sketch of a triangle ABC that is not drawn to scale.



Use a ruler and a pair of compasses to draw an accurate diagram of triangle ABC .
Line AB is drawn accurately for you.
You must show all your construction arcs.

[2]

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13. In the following table, the letters a and b represent numbers.
The total for each row is given at the side of the table.

a	$3a$	b	23
a	a	20	30

Find the value of a and the value of b .

[3]

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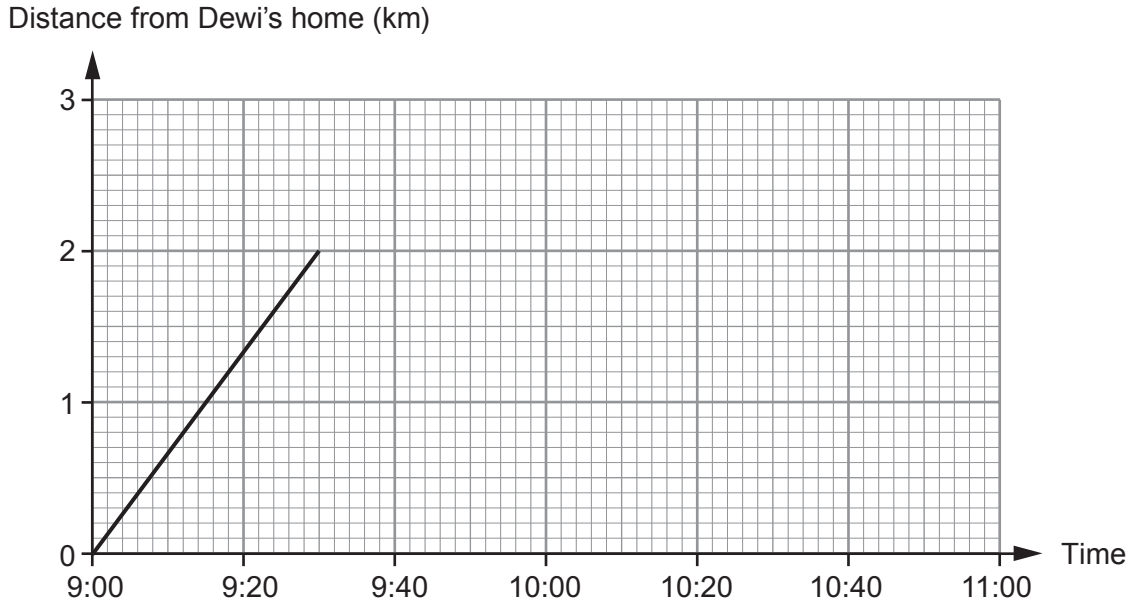
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$a =$ $b =$

14. The travel graph below represents part of Dewi's journey as he walked to a swimming pool which was 3 km from his home.



The graph shows that Dewi left his home at 9:00 a.m. and walked 2 km to his friend Gareth's house.

- (a) At what time did Dewi arrive at Gareth's house? [1]

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- (b) Gareth was not ready and so Dewi had to wait for him for 50 minutes. Draw this on the travel graph above. [1]

- (c) Dewi and Gareth then walked the final kilometre at a steady speed and arrived at the swimming pool at 10:40 a.m. Draw the final stage of Dewi's journey on the graph above and find the speed at which Dewi and Gareth walked the final kilometre. Give your answer in kilometres per hour. [3]

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15. Share 252 kg in the ratio 5 : 1.

[2]

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16. (a) Solve the equation $3(x - 7) = 21$.

[3]

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(b) Solve the equation $9y - 2 = 5y + 12$.

[3]

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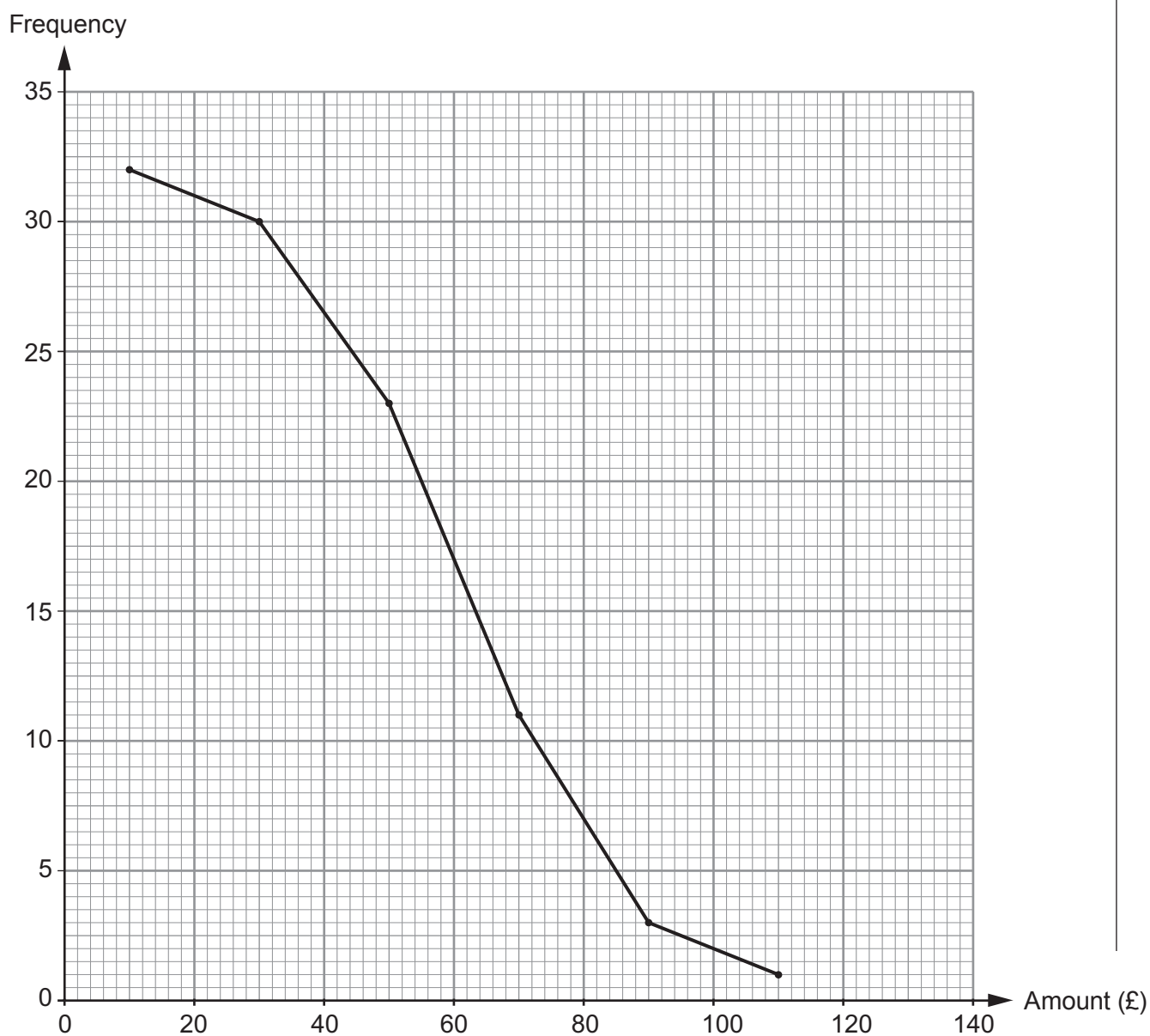
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17. The frequency polygon below shows the amount of money that 100 customers spent in a supermarket on a Monday morning.

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The amount of money that **another 100 customers** spent in the same supermarket on a **Saturday afternoon** is shown below.

Amount, s (£)	Frequency
$0 < s \leq 20$	5
$20 < s \leq 40$	19
$40 < s \leq 60$	34
$60 < s \leq 80$	12
$80 < s \leq 100$	12
$100 < s \leq 120$	10
$120 < s \leq 140$	8

- (a) On the **same graph paper**, draw a frequency polygon to show the amount of money that the customers spent on the Saturday afternoon. [2]
- (b) Use the two frequency polygons to make one comparison between the amount spent on Monday morning and the amount spent on Saturday afternoon. [1]

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18. Calculate the length x in the triangle below.

[3]

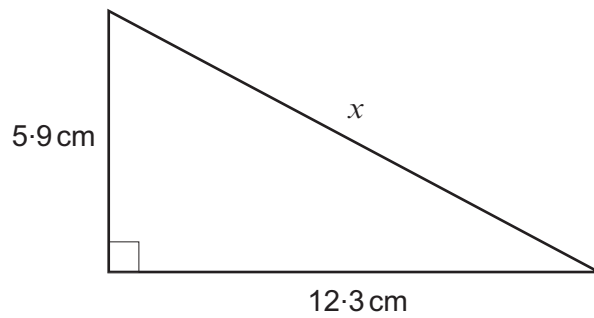


Diagram not drawn to scale

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19. A company has a large semicircle as part of its logo. The company plans to paint the logo onto one of the walls of its headquarters. One tin of paint covers 15 m^2 .

Calculate the number of tins of paint that the company needs to buy to paint a semicircle of radius 6.3 m onto the wall. [4]

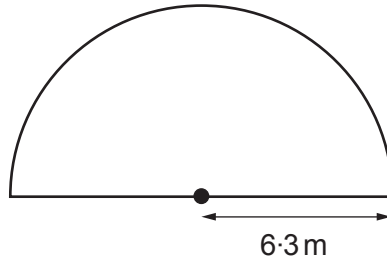


Diagram not drawn to scale

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- 20.** Leah is drawing a map of her local area. She has accurately plotted the positions of the villages of Caer, Aber and Bont on the map below.
Leah now wants to plot the position of her house.
Her house is the same distance from Aber as it is from Bont.
According to the scale she is using, it needs to be plotted 6 cm from Caer.
Find the two possible positions of Leah's house, and mark each with a cross. [3]



END OF PAPER