Surname	Centre Number	Candidate Number
Other Names		0

WJEC CBAC

GCSE

4353/01

A14-4353-01

MATHEMATICS (UNITISED SCHEME)

UNIT 3: Calculator-Allowed Mathematics FOUNDATION TIER

A.M. MONDAY, 10 November 2014

1 hour 30 minutes

Suitable for Modified Language Candidates

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**7**	
2.	**3**	
3.	**2**	
4.	**3**	
5.	**3**	
6.	**2**	
7.	**6**	
8.	**5**	
9.	**3**	
10.	**4**	
11.	**8**	
12.	**2**	
13.	**5**	
14.	**3**	
15.	**2**	
16.	**4**	
17.	**4**	
18.	**3**	
19.	**4**	
20.	**3**	
21.	**4**	
Total	**80**	

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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.

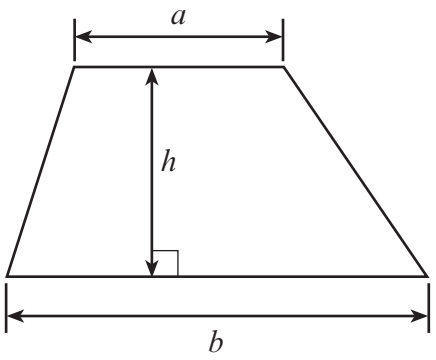
Scale drawing solutions will not be acceptable where you are asked to calculate.

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

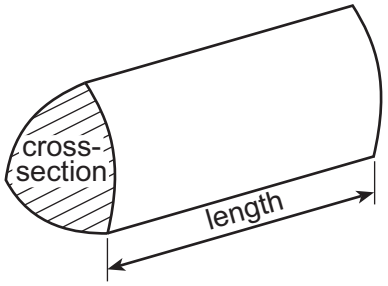
You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **8**.

Formula List

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



Volume of prism = area of cross-section × length



Examiner only

1. *(a)* Siân buys the following items from an online music store.

Complete her bill. [4]

Item	Cost
10 badges @ 85p each	£
3 T-shirts @ £7.95 each	£
20 blank CDs @ £4.99 per pack of 10	£
Total	£

(b) The online store gives free delivery if the total cost is £50 or over.
How much more does Siân need to spend to get free delivery? [1]

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(c) The music store also has a special offer on music-video downloads.

Download one music-video
For £1.99

SPECIAL OFFER TODAY

3 for the price of 2

What is the cost of 9 music-video downloads with this special offer? [2]

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Examiner only

2. *(a)* Write 52 836 correct to the nearest 1000. [1]

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(b) Write 67·121 correct to the nearest whole number. [1]

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(c) Write 37·786 correct to one decimal place. [1]

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3. There were 38 people on a bus.
At a bus stop, 12 people got off the bus and some people got on.
There were then 42 people on the bus.
How many people got on the bus at the bus stop? [2]

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Examiner only

4. The electricity meter readings at the beginning and the end of a three month period were:

Reading at the end of the period	6	4	3	5
Reading at the beginning of the period	5	7	9	3

The cost of the electricity used was 15p for each unit.

What was the cost of the electricity used in the three month period? [3]

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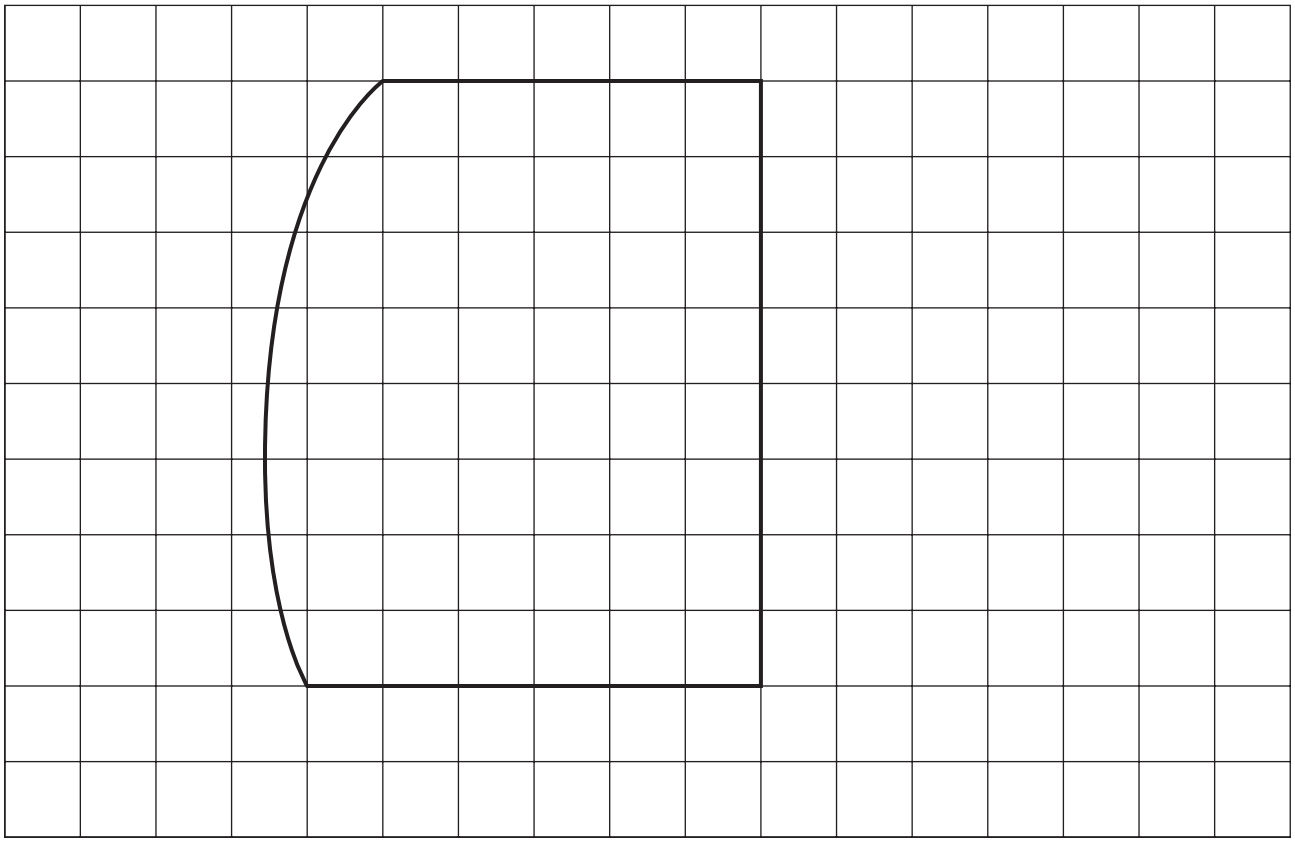
Examiner only

5.



The above shape represents the outline of a garden drawn to scale.
Each square on the grid represents an area of $5\,m^2$.
Find the approximate area of the garden. [3]

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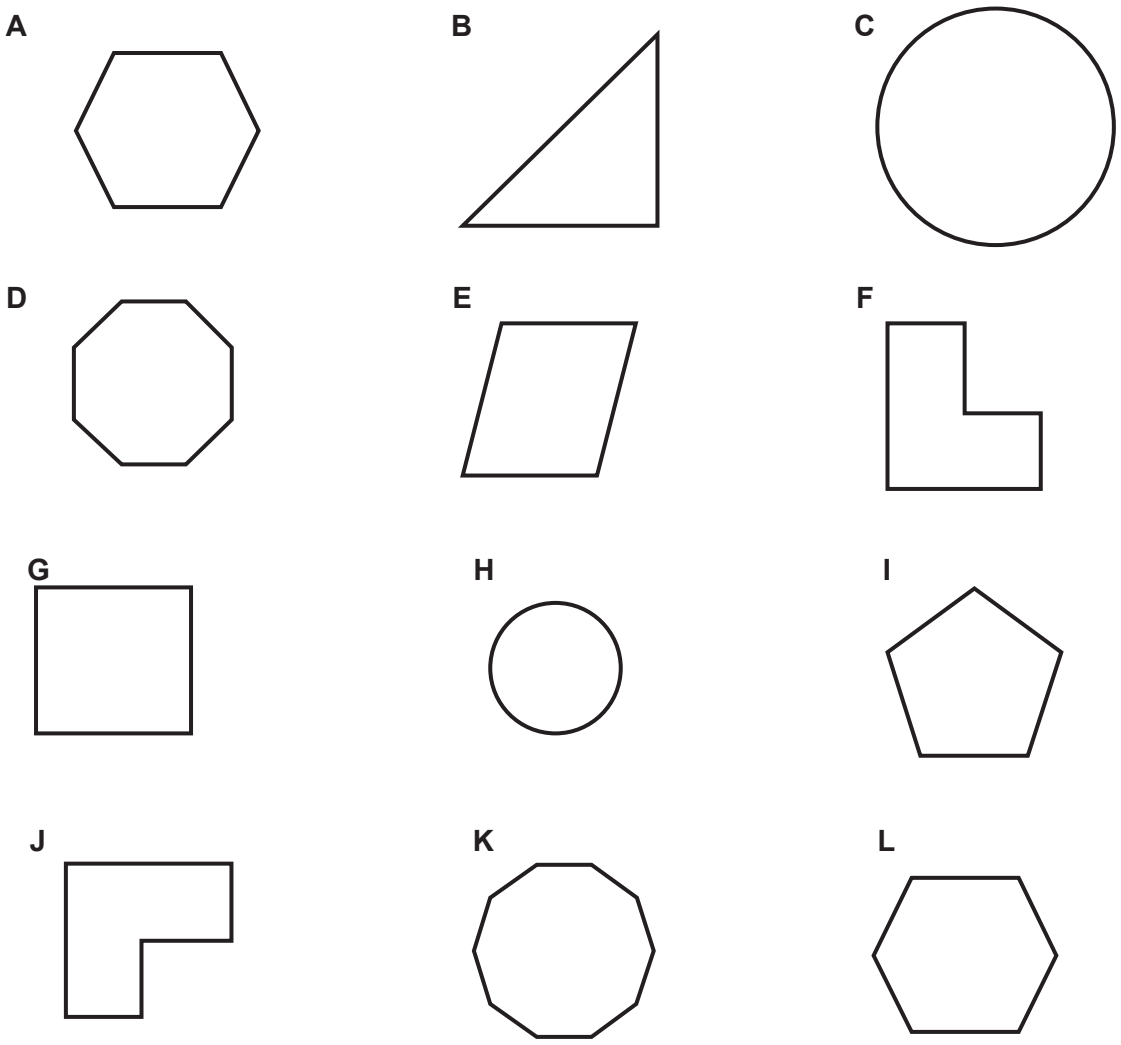
Examiner only

6.



(a) Write down **one** pair of congruent shapes from the above diagrams. [1]

..... and ..... are congruent shapes.

(b) Write down **one** pair of shapes that are **similar** but not congruent. [1]

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

Turn over.

Examiner only

7. *(a)* Using the following numbers **once only** in each case,

3	5	12	20

fill in the boxes so that the equations are correct.

(i) $\square + \square = \square - \square$ [1]

(ii) $\square \div \square = \square \div \square$ [1]

(b) (i) Work out the value of [1]

$$4 \times 9 \div 3 - 1$$

(ii) The following calculation will be correct only if brackets are used.
Insert brackets to make the calculation correct. [1]

$$4 \times 9 \div 3 - 1 = 18$$

Examiner only

(c) Using **only numbers from the list below**,

6	–5	8	–10

select two **different** numbers that **add together** to give the **lowest** possible answer. [1]

$\square + \square = \_\_\_\_\_$

(d) Using **only numbers from the list below**,

–4	7	3	–6

select two **different** numbers that **multiply together** to give the **highest** possible answer. [1]

$\square \times \square = \_\_\_\_\_$

Examiner only

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

The same size bottles of energy drink are sold in a supermarket in 2 different packs.

4-bottle pack £3.00 per pack	6-bottle pack £4.30 per pack

A sports team manager wants to buy **exactly** 16 bottles of energy drink.

What is the cheapest total price that he can pay for exactly 16 bottles?

You must explain why your total price is the cheapest.

Show all your working. [5]

Examiner only

9. Shape A and shape B are made from five identical squares.

A B

Diagrams not drawn to scale

The perimeter of shape A is 36 cm. Calculate the perimeter of shape B. [3]

10. *(a)* Work out the value of $\frac{A}{6}$ when $A = 108$. [1]

(b) Use the formula $W = X + 5Y$ to find the value of Y when $W = 120$ and $X = 45$. [3]

Examiner only

11. A class of 24 students was given a test.

These are the marks that each student scored.

22	50	11	31	24	41
39	26	35	33	25	32
15	28	13	25	19	29
49	21	17	27	43	38

(a) What is the range of the marks? [1]

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Each group of marks was given a grade as shown in the table below.

(b) Complete the frequency table for these marks. [2]

MARK	GRADE	TALLY	FREQUENCY
11 to 20	D		
21 to 30	C		
31 to 40	B		
41 to 50	A		

(c) What is the modal group of marks? [1]

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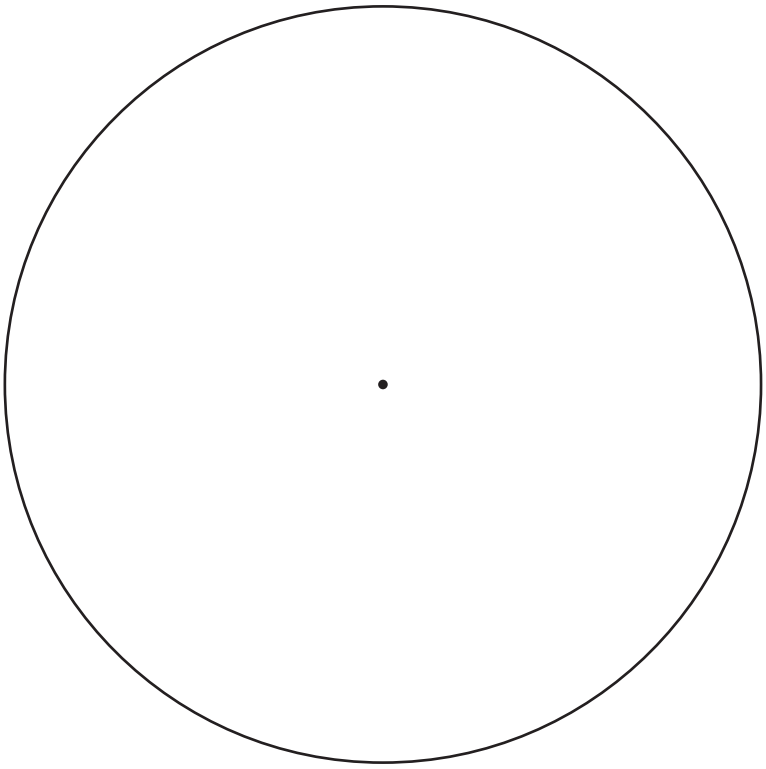
Examiner only

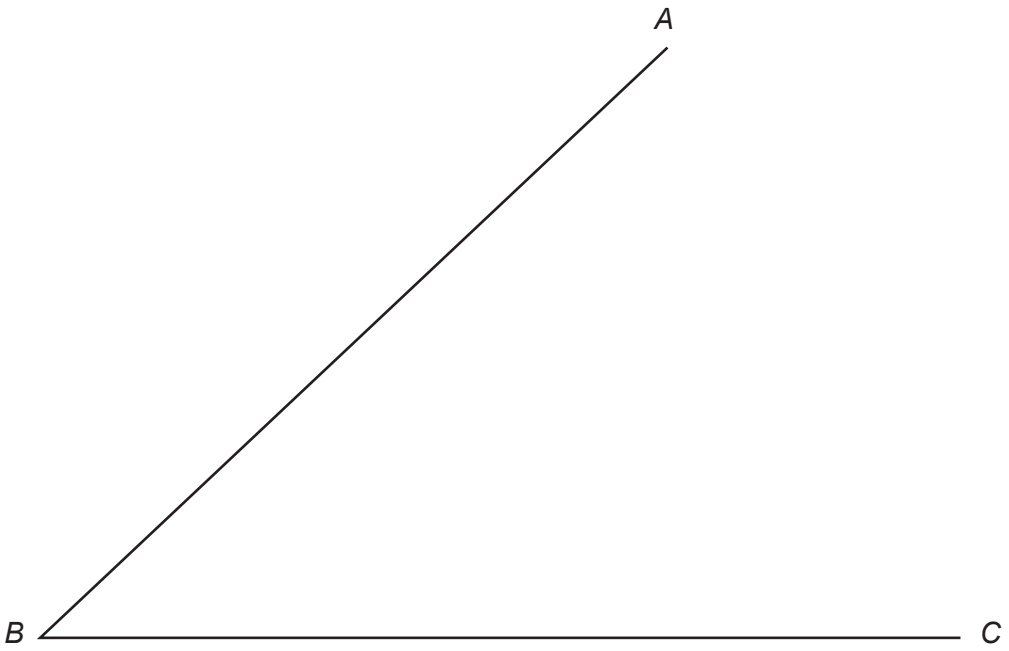
(d) Draw a pie chart to illustrate the grades obtained by the class.

You should show how you calculate the angles of the pie chart. [4]



Examiner only

12. Using a ruler and a pair of compasses, construct the bisector of $A\hat{B}C$. [2]



Examiner only

13. A tank in the shape of a cuboid has length 45 cm, width 32 cm and height 30 cm. This is shown in the diagram below.

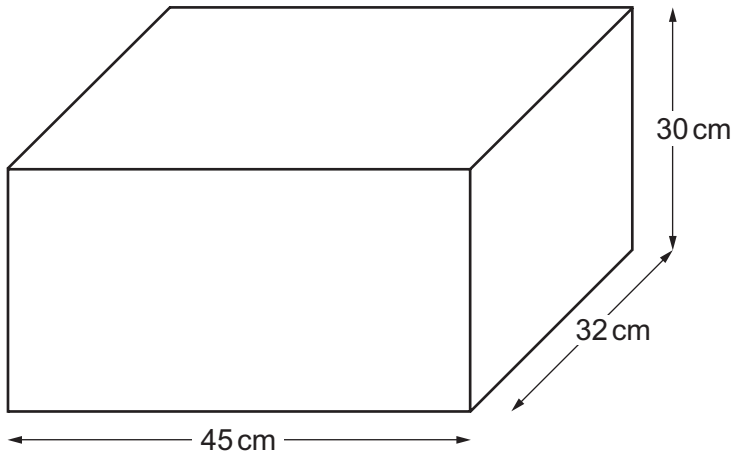


Diagram not drawn to scale

(a) Calculate the volume of the tank. State the units of your answer. [3]

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(b) 43 litres of water is poured into the empty tank.
Does the water overflow?
You must show all your working to support your answer. [2]

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Examiner only

14. In a survey, some pupils were asked if they had eaten a school dinner that day.

$\frac{5}{8}$ of the pupils said "Yes".

$\frac{3}{8}$ of the pupils said "No".

48 **more** pupils said "Yes" than said "No".

How many pupils took part in the survey? [3]

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15. Find the size of each interior angle of a regular pentagon. [2]

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Examiner only

16. A bathroom mirror is shown below. Two vertical and two horizontal overlapping wooden pieces are placed over the mirror as shown. The width of each of the wooden pieces is 2 cm.

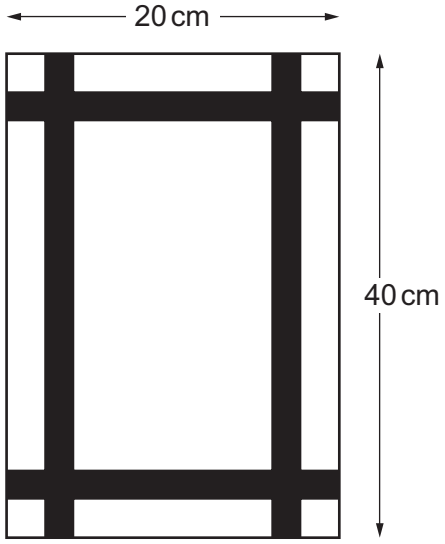

Diagram not drawn to scale

Calculate the area of the mirror that is **not** covered by the wooden pieces.
Show all your working. [4]

Examiner only

17. A theme park collects a large amount of data for every day that it is open.
The following table shows the data collected for six randomly selected days in August 2014.

Day	**1**	**2**	**3**	**4**	**5**	**6**
Number of visitors (thousands)	4	6	14·6	10·4	9·8	13
Weight of litter collected (tonnes)	1·6	3	6·1	3·8	4·6	5

(a) On the graph opposite, draw a scatter diagram to show this information. [2]

(b) Draw a line of best fit on your scatter diagram. [1]

(c) Use your line of best fit to estimate the weight of litter that would be collected on a day when 12 000 people visited the park. [1]

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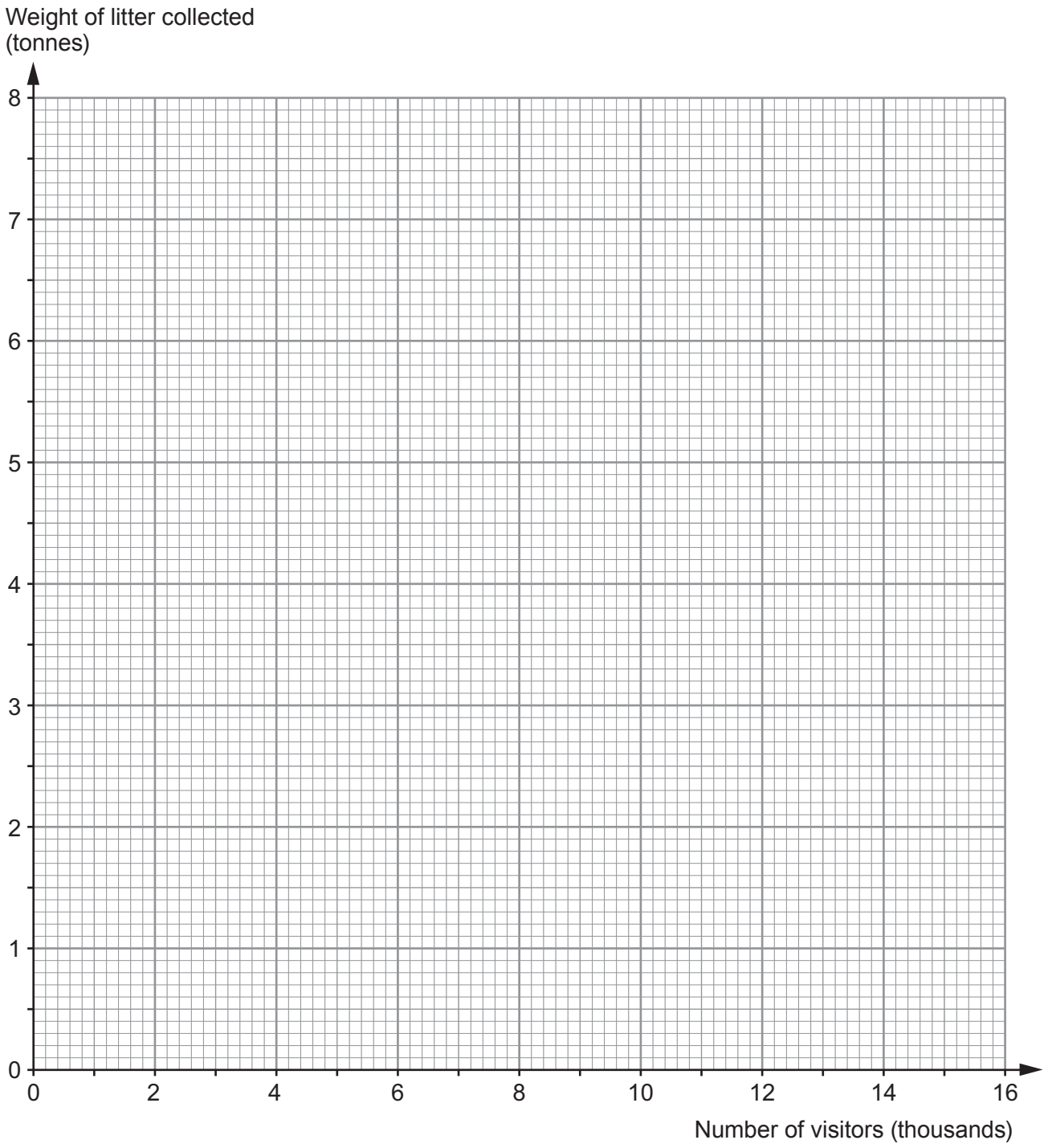
Examiner only



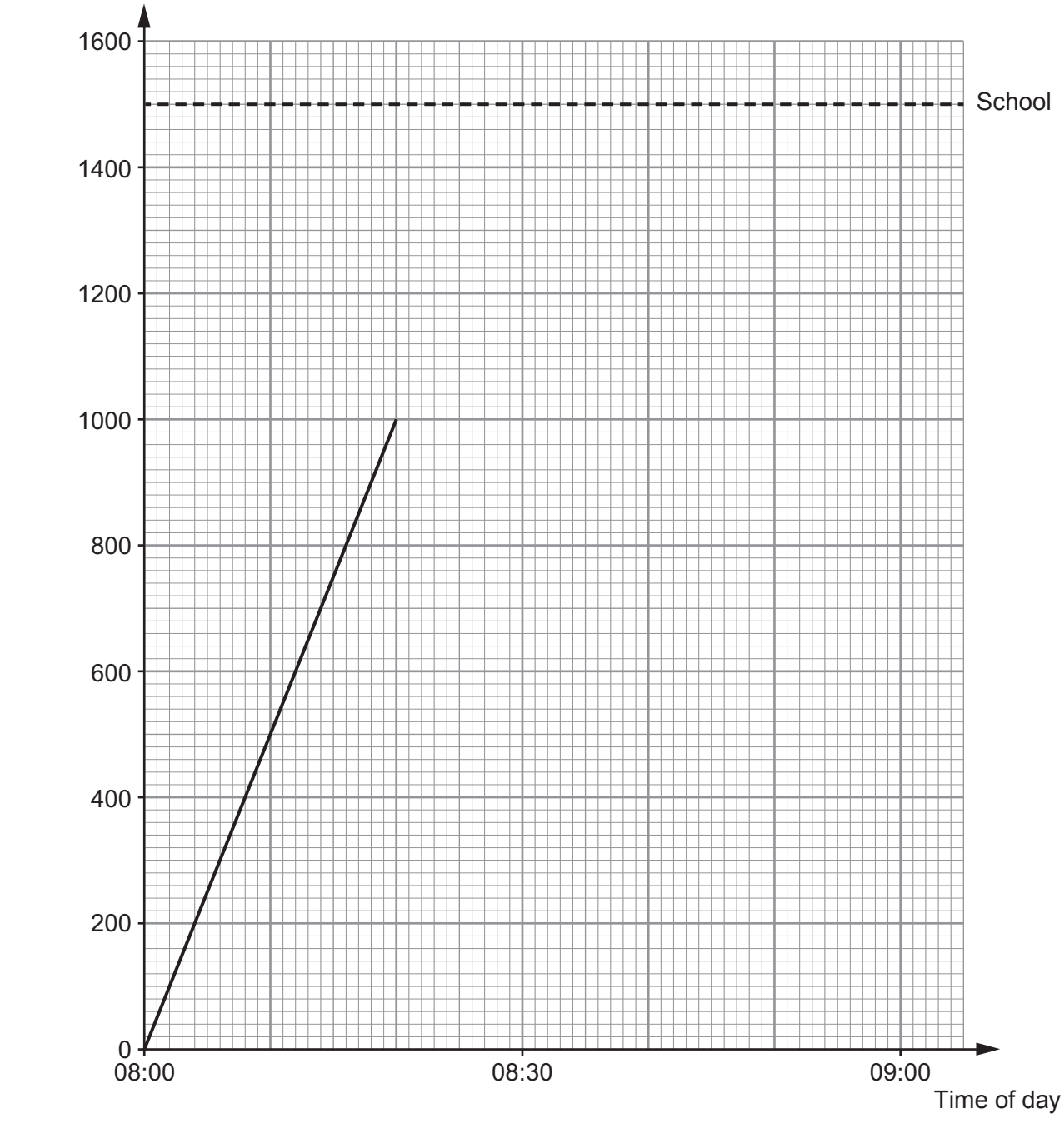
Turn over.

Examiner only

18. Danny lives 1500 m away from his school. He walks to school at the same constant speed every day starting at 08:00.
The travel graph below shows the start of his journey one day.

Complete the travel graph using the following information:

- When he had travelled 1000 m he realised that he had left his dinner money in the house. He turned around, arriving back at his home at 08:30.
- He immediately set off from home running at a steady speed. He ran a distance of 500 m every 5 minutes, until he reached his school. [3]



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19. A solution to the equation $x^3 + 10x - 20 = 0$ lies between 1·5 and 1·6.
Use the method of trial and improvement to find this solution correct to 2 decimal places. [4]

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Examiner only

20. The diagram below shows a ladder resting against the top of a vertical wall.
The ladder is 4·9 m long and the wall is 4 m high.
How far is the bottom of the ladder from the base of the wall? [3]

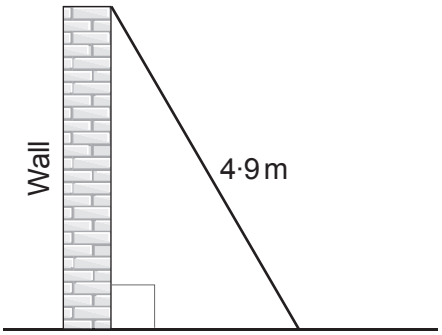

Diagram not drawn to scale

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Examiner only

21. A golfer hits 40 golf balls with one of his clubs.
He records the distance each ball travels. The grouped frequency table shows his results.

Distance travelled, d, in yards	Frequency
$75 < d \leqslant 80$	4
$80 < d \leqslant 85$	13
$85 < d \leqslant 90$	17
$90 < d \leqslant 95$	6

Calculate an estimate for the mean distance travelled by these balls. [4]

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END OF PAPER