

Surname	Centre Number	Candidate Number
Other Names		0



GCSE

4351/01



MATHEMATICS (UNITISED SCHEME)
UNIT 1: Mathematics in Everyday Life
FOUNDATION TIER

A.M. THURSDAY, 21 May 2015

1 hour 15 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. Do not use gel pen or correction fluid.

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.

If you run out of space, use the continuation page at the back of the booklet, taking care to number the question(s) correctly.

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 1(a).

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	8	
2.	4	
3.	4	
4.	2	
5.	4	
6.	6	
7.	4	
8.	6	
9.	2	
10.	8	
11.	3	
12.	4	
13.	2	
14.	4	
15.	4	
Total	65	

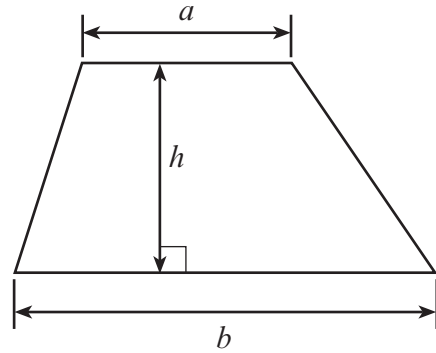
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Formula List

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



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



- 1. Mr and Mrs Jones and their four children, aged 12, 9, 7 and 4 years old, visit a toy fair. The cost of tickets to the fair is shown on a board.

TOYS ACROSS THE AGES

Adults £15 each

Half price for children under 14 years old

Free entry for the Under 5s

- (a) *You will be assessed on the quality of your written communication in this part of the question.*

What is the total cost of the tickets for Mr and Mrs Jones and the children to visit the toy fair?
 Show all your working. [6]

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- (b) Mrs Jones had a voucher that gave a discount of 10% off the total cost of their tickets. How much did they actually pay for their tickets? [2]

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2. The number of cars using a town's main car park each day was recorded during the month of February.
The numbers are recorded below.

256 218 242 231 207 241 173

242 193 212 267 241 208 245

260 199 276 280 234 239 187

212 236 195 178 251 204 188

Using **equal** class intervals, complete the following table.

[4]

Number of cars	170 to 199	200 to 229		260 to 289
Tally	//// //			
Frequency	7			



3. Eight friends hire a mini-bus for 12 days.
The hire cost is to be shared equally between the eight friends.

The cost of hiring the mini-bus is given by the formula

$$\text{hire cost} = \text{£}45 \times \text{number of days} + \text{fixed charge}$$

Calculate how much each friend should pay when the fixed charge is £50.

[4]

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4. Four cards showing the digits 2, 3, 4 and 5 are used on a display board to show the total number of people at a concert.
The following two facts are known.

- There were between four thousand and four thousand, five hundred people at the concert.
- **Exactly** half of the people at the concert were under 30 years old.

Using only the four cards showing the digits 2, 3, 4 and 5, give the number of people at the concert.

[2]



5. Anya lives in Sheffield.
She needed to be at a meeting at a hotel in Leeds at 3:00 p.m.

In planning her journey, she allowed herself 45 minutes to travel from the station at Leeds to the hotel.

She wanted to catch the latest possible train from Sheffield to be sure of arriving at the hotel in Leeds in time.

Part of the train timetable she used is shown below.

Sheffield (depart)	12:28	13:21	13:36	14:17	14:28
Leeds (arrival)	13:59	14:02	14:47	15:18	15:59

Anya caught the train she wanted, and the train arrived at Leeds station on time.
It took a total of 25 minutes for her to find a taxi and to travel from the station to the hotel.

Calculate the total time taken between Anya departing from Sheffield and arriving at the hotel in Leeds. [4]

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Time taken =



6. Two groups of six people took part in a quiz.

(a) The six members of group A gained the following scores.

52 29 78 56 24 37

(i) Calculate the mean score per person. [3]

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(ii) What was the range of the scores gained? [1]

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(b) The scores gained by the six members of group B are summarised below.

Score	Number of people
22	2
25	2
26	1
28	1

(i) Without doing any further calculations, state which group had the larger mean score per person. You must give a reason for your choice. [1]

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(ii) Which group had the larger range of scores? You must give a reason for your choice. [1]

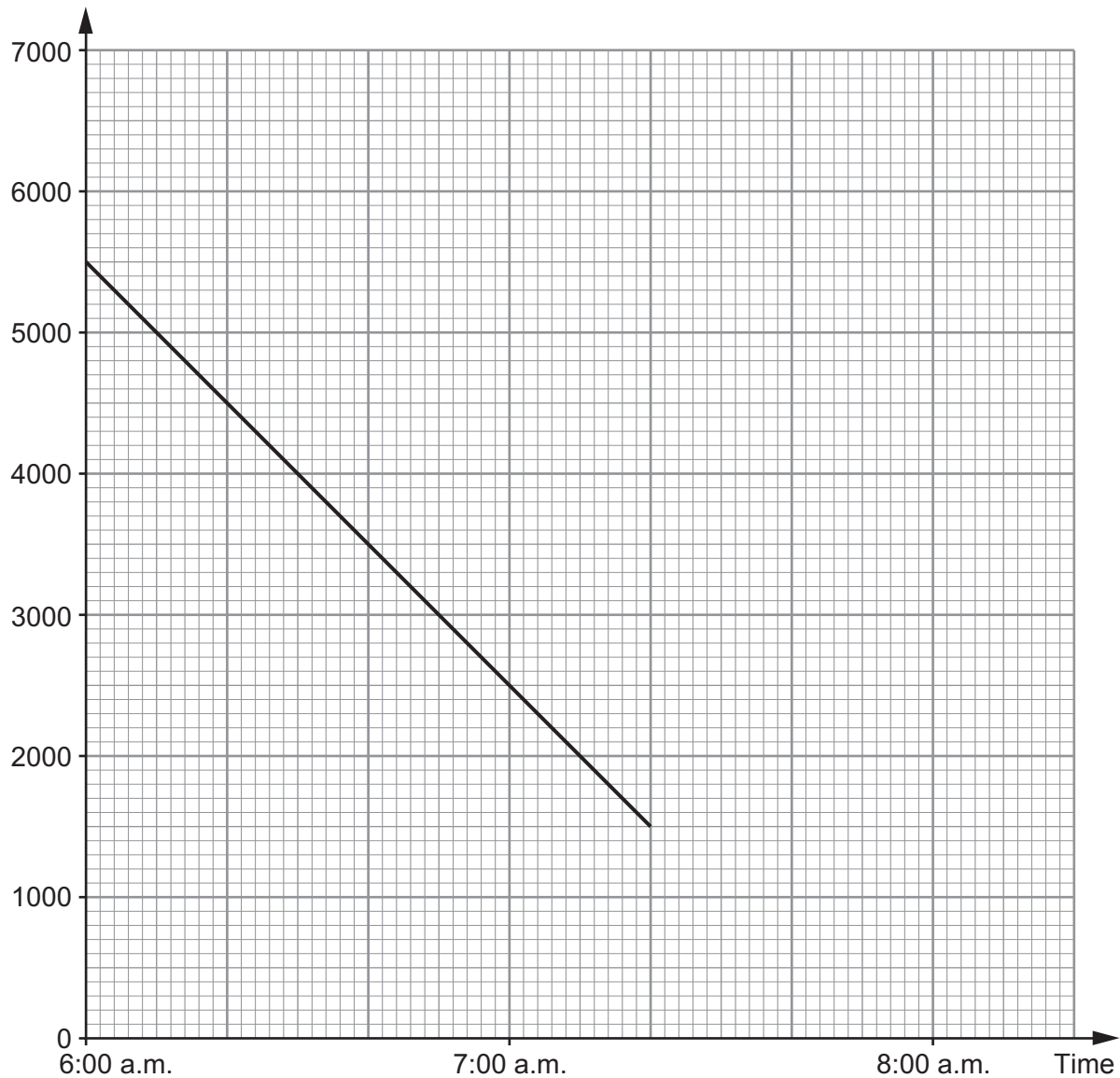
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7. A water tank can hold up to 7000 litres of water.
At 6:00 a.m. a tap is opened to empty the tank of any water it contains.
The water then drains away at a constant rate until the tank is empty.
The graph below shows the volume of water in the tank for part of the time it takes to completely empty the tank.

Volume of water in the tank (litres)



(a) How many litres of water were in the tank at 6:00 a.m.? [1]

..... litres

(b) At what time was the tank exactly half full? [1]

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(c) How long did it take for the tank to empty after the tap was opened? [2]

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8. A large solid cuboid has dimensions 2 metres by 3 metres by 5 metres.
Each cubic metre of the solid cuboid weighs 240 kg.

The cuboid is cut into four identical shapes.
During this cutting process, 5% of the cuboid's weight is lost.

Calculate the weight of each of the four shapes. [6]

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9. There are 1760 yards in a mile.

How many yards are there in a kilometre?

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10. Alice borrowed her mum's car to drive to see her friend Alun.

(a) She completed the journey of 225 miles in 4 hours 30 minutes.
Calculate her average speed for the journey.

[3]

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(b) The car used 1 gallon of petrol for every 40 miles travelled.
After Alice had driven back home, she replaced all the petrol she had used on her trip.
Assuming that 1 gallon is approximately 4.546 litres, find the least whole number of litres
of petrol that Alice bought.

[5]

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11. Nerys wants to test the following hypothesis.

'Dog owners are fitter than the average person.'

She plans to:

- hand out a short questionnaire between 9 a.m. and 10 a.m., as people arrive at a local dog show,
- ask the following questions in the questionnaire,

<p>(i) How fit are you?</p> <div style="border: 1px solid black; width: 200px; height: 25px; margin: 5px auto;"></div>
<p>(ii) How often do you walk your dog?</p> <p>1–5 times <input style="width: 40px; height: 25px; margin-left: 10px;" type="checkbox"/> 6–10 times <input style="width: 40px; height: 25px; margin-left: 10px;" type="checkbox"/> 10 or more times <input style="width: 40px; height: 25px; margin-left: 10px;" type="checkbox"/></p>

- collect the completed questionnaires between 4 p.m. and 5 p.m., as people are leaving the dog show.

Write down **three** unfavourable comments about this plan.

[3]

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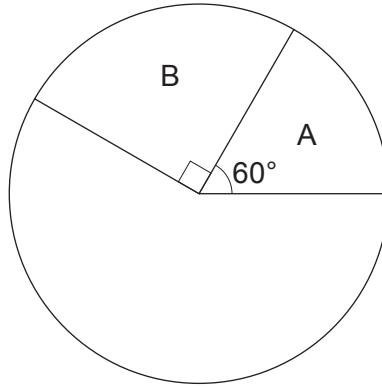
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12. A number of people were asked to choose which of four brands of ice cream they liked the most. The brands were labelled A, B, C and D respectively.

Dimitar has begun to show the results using a pie chart.



He knows that:

- 10 people chose brand A,
- 30 people chose brand C.

Calculate how many people chose brand D.

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13. Evaluate $\sqrt{25 \cdot 6^3 - 17 \cdot 2}$, correct to two significant figures. [2]

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14. Elfed invests £3500 for 2 years at 1.5% per annum compound interest.
Calculate the value of his investment at the end of the 2 years.
Give your answer correct to the nearest penny. [4]

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15. Sofia had planned to exchange £300 for euros during a visit to the local town one Saturday. She had checked the exchange rate for that day, and found it to be £1 = 1.20 euros.

Unfortunately, she had to cancel her visit to town that day, and it was not until the following Saturday that she was able to exchange her £300 for euros.

By this date the exchange rate was £1 = 1.17 euros.

How many fewer euros did she receive due to this delay?

What percentage loss was caused by this delay?

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END OF PAPER



