

**Thursday 26 May 2016 – Morning**

**GCSE MATHEMATICS A**

**A501/01** Unit A (Foundation Tier)

Candidates answer on the Question Paper.

**OCR supplied materials:**  
None

- Other materials required:**
- Scientific or graphical calculator
  - Geometrical instruments
  - Tracing paper (optional)

**Duration:** 1 hour



Candidate forename		Candidate surname	
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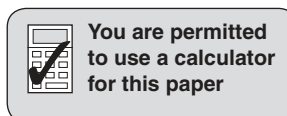
Centre number						Candidate number				
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### INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

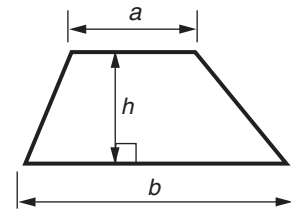
### INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is **60**.
- This document consists of **16** pages. Any blank pages are indicated.

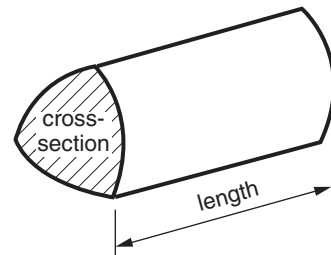


## Formulae Sheet: Foundation Tier

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



**Volume of prism** = (area of cross-section) × length



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Answer **all** the questions.

1 Choose from this list

17	18	25	28	39	72
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(a) a multiple of 7,

(a) ..... [1]

(b) a factor of 36,

(b) ..... [1]

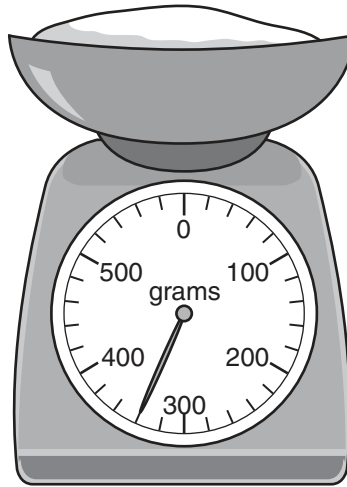
(c) two numbers with a difference of 14,

(c) ..... and ..... [1]

(d) a prime number.

(d) ..... [1]

- 2 Jay makes a cake.  
He uses this amount of flour from a full 1.5 kg bag.



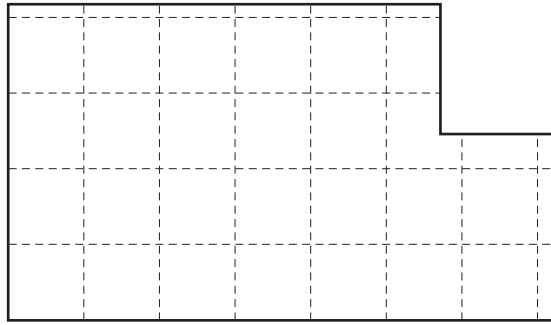
- (a) How much flour does Jay use?

(a) ..... g [1]

- (b) How much flour is left in the bag?  
Give the units of your answer.

(b) ..... [2]

- 3 Here is a scale drawing of the floor of a meeting room.



Scale: 1 cm represents 2 m

- (a) Find the real length of the longest side of the floor.

(a) ..... m [2]

- (b) A large rectangular table is placed in the room so that people can sit all around it. The table measures 4.2 m by 3.4 m.

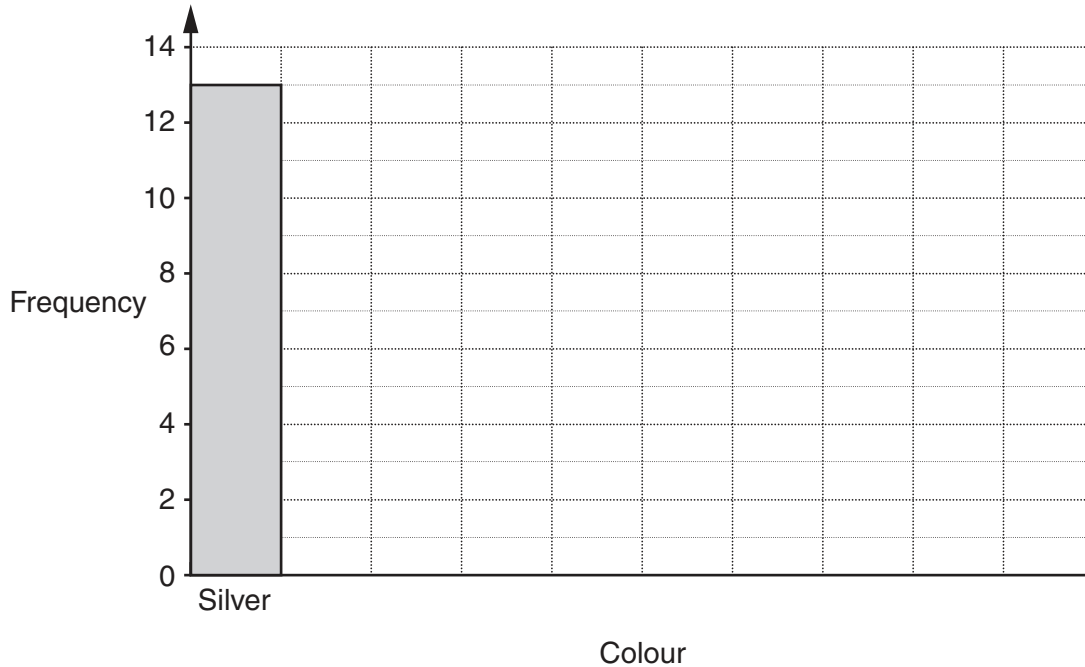
Draw the table in a suitable position on the scale drawing.

[2]

- 4 (a) Jan counted the cars in the village car park one morning. Here is her record sheet.

Colour of car	Tally	Frequency
Silver		
Red		
Black		
Green		
Other		

- (i) Complete the frequency column of her record sheet. [1]
- (ii) Complete this bar chart to represent the data.



[2]

- (b) Ali counted cars in a car park near his home.
- There were 22 cars altogether.
  - There were 4 black cars.
  - There were twice as many silver cars as black cars.

Ali said 'These facts show that silver was the most common colour of car in this car park.'

Explain why Ali might be wrong.

.....

..... [2]

- 5 (a) Here are the first three patterns in a sequence of dots.

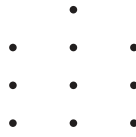
Pattern 1



Pattern 2



Pattern 3



Pattern 4

- (i) Draw Pattern 4 in the sequence. [1]

- (ii) Without drawing any more patterns, find how many dots there are in Pattern 10. Explain how you decided.

Pattern 10 has ..... dots because .....

..... [2]

- (b) Simplify fully.

$$4b + 5c - 2b + 9c$$

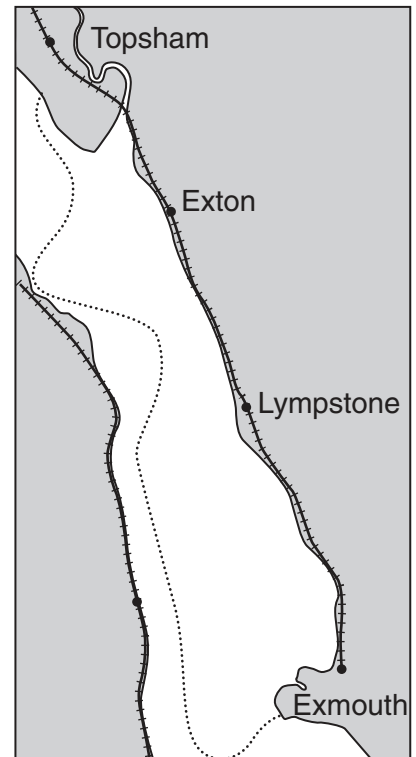
(b) ..... [2]

6 The Adams family want to explore the Exe estuary.

- (a) There are two adults and two children in the Adams family.  
They buy an all-day travel ticket for each person.  
The price is £8 for each adult and £5 for each child.  
They also buy 4 ice creams at £1.95 each.

How much do they spend in total?

Not to  
scale



(a) £ ..... [2]

- (b) The Adams family catch the ferry that leaves Topsham at 11.15 am.  
It takes one hour to reach Exmouth.  
They then explore Exmouth until 1.30 pm.

How much time do they spend exploring Exmouth?

(b) ..... [1]



- (c) The family have a picnic and then they are ready to start their journey back to Topsham at 2.00 pm.

On the way back from Exmouth they want to

- walk at least 3 miles
- go by train for part of the journey
- get to Topsham by 3.40 pm.

Here are the distances and times for walking along the trail.  
The trail is close to the railway line.

	Distance	Time to walk
Exmouth to Lympstone	2.5 miles	50 minutes
Lympstone to Exton	1.5 miles	30 minutes
Exton to Topsham	2 miles	40 minutes

Here is the train timetable.  
Some trains do not stop at Exton.

Exmouth	13:23	13:53	14:24	14:53	15:24
Lympstone	13:27	13:57	14:28	14:57	15:28
Exton	13:30		14:31		15:31
Topsham	13:35	14:04	14:36	15:03	15:36

Work out **one** time plan so that the Adams family can achieve all three of their 'wants'.  
Include the total distance they walk.

Activity	Start time	Finish time

Total distance walked = ..... miles

[6]

7 (a) Here are the attendances at five home games of a local football club.

10007      11 031      9386      10904      11 247

(i) Find the median of these attendances.

(a)(i) ..... [2]

(ii) Calculate the mean of these attendances.

(ii) ..... [2]

(b) For one home game, the football club sold these tickets:

Category	Ticket price (£)	Number of tickets	
Executive boxes	43	417	
Adult	26	5238	
Concessions	14	2175	
Juniors	7	930	
Totals		8760	

(i) Calculate the total amount of money taken by the club for **all** these tickets.

(b)(i) £ ..... [2]

(ii) Calculate the mean price of a ticket.

(ii) £ ..... [2]

- 8 On the busiest Christmas shopping day in 2014, an online store sold an average of 64 items each second.

Calculate how many items the store sold during that 24 hours.  
Show how you decide and give your answer correct to the nearest million.

..... [4]

- 9 Mary buys 3 cups of tea for £3.75.  
In the same café, Lucia buys 5 cups of tea and 2 mugs of coffee. She pays £10.75.

Work out the price of a mug of coffee. Show your method clearly.

£ ..... [4]

- 10 (a) *Manton Inn* has this formula for the total cost, £ $P$ , for room hire and a meal for  $n$  people.

$$P = 48 + 12n$$

Find the total cost at *Manton Inn* for room hire and a meal for 25 people.

(a) £ ..... [2]

- (b) *Carney Hotel* charges £20 for the hire of the room and £16 per person for a meal.

Write a formula for the total cost, £ $C$ , of room hire and a meal for  $n$  people at this hotel.

(b) ..... [2]

- (c) Write an equation in terms of  $n$  for which the total cost at *Carney Hotel* and *Manton Inn* is the same.

Solve this equation to find  $n$ .

(c) ..... [3]

11 Calculate.

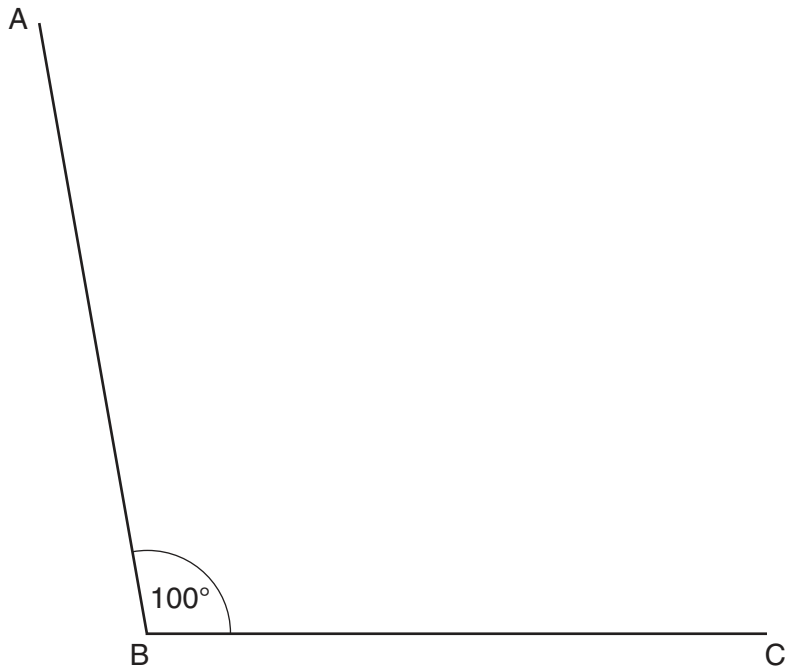
$$\sqrt{\frac{63.4^3}{0.083}}$$

Give your answer correct to the nearest 1000.

..... [2]

- 12 *In this question, use a ruler, a protractor and a pair of compasses.  
Do not rub out your construction lines.*

Quadrilateral ABCD has two sides AB and BC each of length 8.2 cm.  
Angle ABC =  $100^\circ$  and angle BCD =  $105^\circ$ .  
Side AD has length 11.7 cm.



- (a) Complete the drawing of quadrilateral ABCD. [3]
- (b) **Construct** the bisector of angle ABC. [2]

**END OF QUESTION PAPER**

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