

**Thursday 25 May 2017 – Morning**

**GCSE MATHEMATICS B**

**J567/01** Paper 1 (Foundation Tier)

Candidates answer on the Question Paper.

**OCR supplied materials:**  
None

**Other materials required:**

- Geometrical instruments
- Tracing paper (optional)

**Duration:** 1 hour 30 minutes



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 barcodes.

**INFORMATION FOR CANDIDATES**

- The number of marks is given in brackets [ ] at the end of each question or part question.
- Your quality of written communication is assessed in questions marked with an asterisk (\*).
- The total number of marks for this paper is **100**.
- This document consists of **20** pages. Any blank pages are indicated.

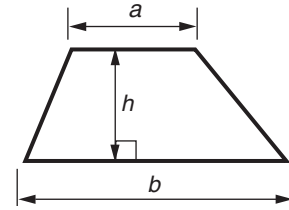
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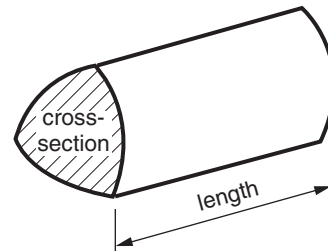
No calculator can be used for this paper

## Formulae Sheet: Foundation Tier

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



$$\text{Volume of prism} = (\text{area of cross-section}) \times \text{length}$$



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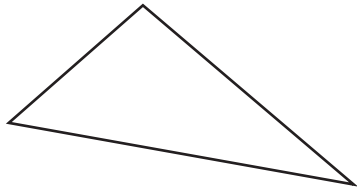
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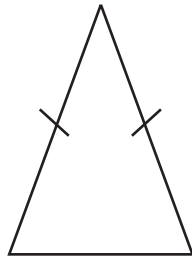
3

Answer **all** the questions.

1 Draw a line from each triangle to its correct name.

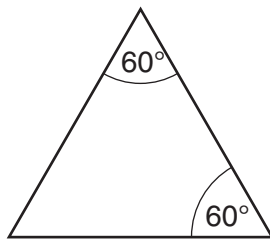


Isosceles



Right-angled

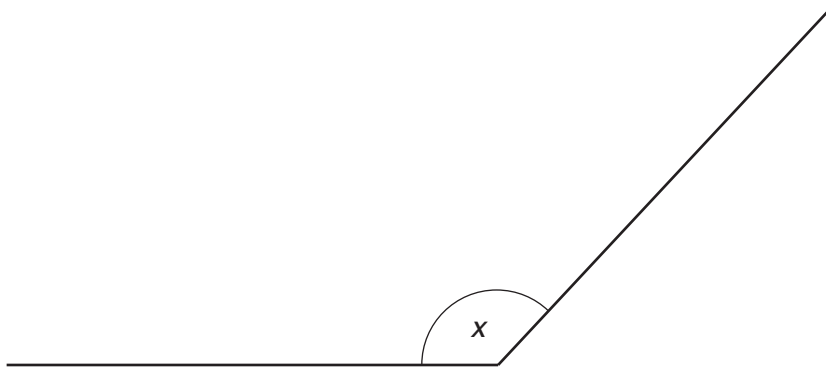
Equilateral



Scalene

[3]

- 2 (a) Measure angle  $x$ .



(a) ..... ° [1]

- (b) What is the mathematical name of angle  $x$ ?

(b) ..... [1]

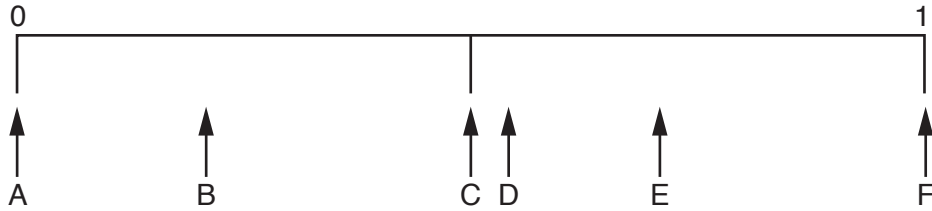
- 3 Write the following numbers in order of size, starting with the smallest.

3.24    3.204    3.402    3.04    3.002

..... [2]  
*smallest*

- 4 A biscuit tin contains 24 biscuits.
- 5 are chocolate
  - 2 are ginger
  - 13 are plain
  - 4 are shortbread

Ed takes a biscuit from this tin at random.



Which arrow shows the probability that the biscuit Ed takes is:

(a) chocolate

(a) ..... [1]

(b) plain

(b) ..... [1]

(c) strawberry?

(c) ..... [1]

5 Work out.

(a)  $84.52 \times 1000$

(a) ..... [1]

(b)  $37.8 \div 100$

(b) ..... [1]

(c)  $-5 \times -3$

(c) ..... [1]

(d)  $-8 \div 4$

(d) ..... [1]

6 (a) Write 723 to the nearest ten.

(a) ..... [1]

(b) Neil has £810.  
He wants to buy 18 tickets for a football match.  
Each ticket costs £38.60.

Show, by **estimation**, whether or not Neil has enough money to buy the tickets.

Explain how you know.

.....  
..... [3]

7 (a) Write  $\frac{1}{4}$  as

(i) a decimal

(a)(i) ..... [1]

(ii) a percentage.

(ii) ..... % [1]

(b) Write

(i)  $\frac{24}{32}$  in its simplest form

(b)(i) ..... [2]

(ii)  $\frac{17}{3}$  as a mixed number.

(ii) ..... [1]

(c) Work out.

(i)  $\frac{3}{5} - \frac{1}{3}$

(c)(i) ..... [3]

(ii)  $\frac{2}{5} \times \frac{3}{4}$

Give your answer in its simplest form.

(ii) ..... [2]

8 This table gives information about some English kings.

Name	Start of reign	End of reign	Length of reign (years)
Athelstan	924	939	
Henry III	1216	1272	
Henry VIII	1509		38
Charles I	1625	1649	24

(a) (i) Complete the table.

[3]

(ii) The length of Edward VI's reign was one quarter of the length of Charles I's reign.

For how many years did Edward VI reign?

(a)(ii) ..... years [1]

(b) The times of some events at the Royal Wedding in 2011 are listed below.

- 10 15 William arrived at Westminster Abbey.
- 10 45 The Queen arrived at Westminster Abbey.
- 10 51 Kate Middleton left her hotel.
- 12 15 William and Kate left Westminster Abbey.
- 12 30 William and Kate arrived at Buckingham Palace.

(i) At 11 o'clock, how long had William been at Westminster Abbey?

(b)(i) ..... minutes [1]

(ii) William and Kate appeared on the balcony 55 minutes after they arrived at Buckingham Palace.

At what time did they appear on the balcony?

(ii) ..... [1]



9 (a) Write each expression in its simplest form.

(i)  $12e - 7e$

(a)(i) ..... [1]

(ii)  $6g + 7h + 4g - 9h$

(ii) ..... [2]

(b) Multiply out.

$$5(2x + 6)$$

(b) ..... [1]

10 (a) To change degrees Celsius ( $^{\circ}\text{C}$ ) to degrees Fahrenheit ( $^{\circ}\text{F}$ ) this formula is used.

Divide the temperature in Celsius by 5, then multiply by 9, then add 32.

Use the formula above to convert  $30^{\circ}\text{C}$  into Fahrenheit.

(a) .....  $^{\circ}\text{F}$  [2]

(b) Here is another formula.

$$R = 4t + 5$$

Work out the value of  $R$  when  $t$  is 6.

(b) ..... [2]

11 Here is a recipe to make buns.

<b>Buns</b>	
makes 12	
100g	flour
60g	margarine
50g	sugar
2	eggs

Patrice wants to make 42 buns.

He has 8 eggs, 450g flour, 170g margarine and 180g of sugar.

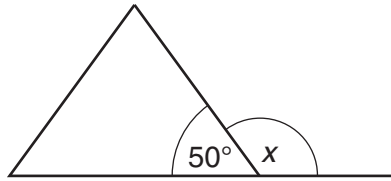
Can he make 42 buns?

Explain **fully** how you worked out your answer.

.....  
..... [3]

12 Work out the following angles, giving reasons for your answers.

(a)

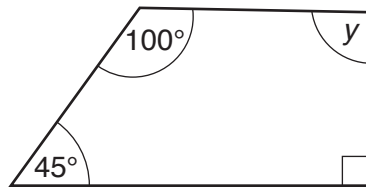


Not to scale

Angle  $x$  is ..... $^\circ$  because .....

..... [2]

(b)

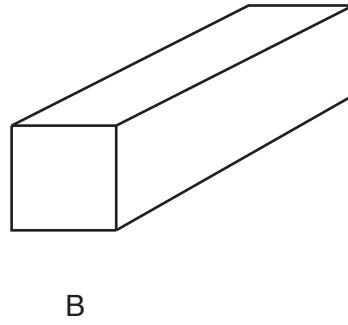
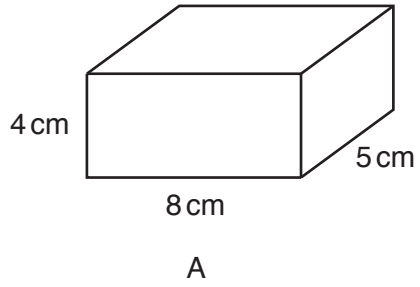


Not to scale

Angle  $y$  is ..... $^\circ$  because .....

..... [3]

13 Here are two cuboids.



Cuboid A has the same volume as cuboid B.  
 The two ends of cuboid B are square.  
 The lengths of the sides of cuboid B are whole numbers, less than 12 cm.

Work out the lengths of the sides of cuboid B.

..... cm ..... cm, ..... cm [4]

14 Solve.

(a)  $16x = 32$

(a)  $x = \dots\dots\dots$  [1]

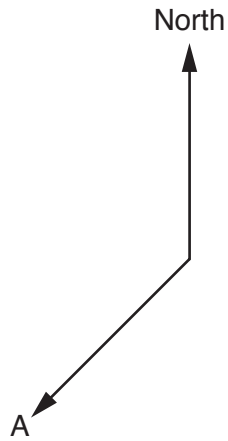
(b)  $5x - 8 = 12$

(b)  $x = \dots\dots\dots$  [2]

(c)  $8x + 14 = 2x - 4$

(c)  $x = \dots\dots\dots$  [3]

15 (a) In which compass direction is arrow A pointing?



(a) ..... [1]

(b) A ship sails 800 km from P to Q on a bearing of 055°.

Complete the scale diagram to show the journey from P to Q. [2]

**Scale: 1 cm represents 100 km**

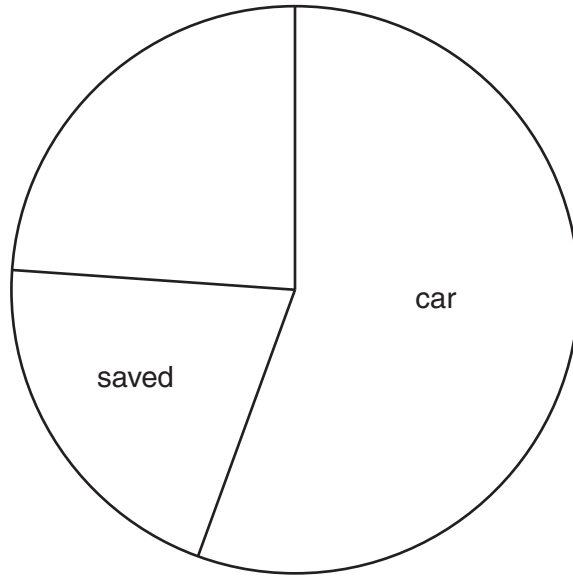


(c) The length of the ship is 247 metres, correct to the nearest metre.

Write down the minimum length of the ship.

(c) ..... m [1]

- 16 Robert received £720 for Christmas.  
The pie chart shows what he did with his money.



- (a) Robert spent £100 on clothes and £72 on DVDs.

Complete the pie chart.

[2]

- (b) How much did Robert spend on his car?

(b) £ ..... [2]

17 The table below summarises the age and gender of the population of a village.

Age ( $a$ years)	$0 \leq a < 20$	$20 \leq a < 40$	$40 \leq a < 60$	$60 \leq a$	Total
Number of males	100	140			
Number of females				210	650
Total	225	250	400	325	1200

(a) Complete the table. [3]

(b) Jared says that there are more females than males in the village.

Write down the information that supports this statement.

.....

.....

..... [1]

(c) Philippa says that less than a quarter of the village is aged 60 or over.

Use the table to show that this statement is not true.

.....

.....

..... [2]

(d) One of the females is selected at random.

Write down the probability that she is aged 60 or over.

(d) ..... [2]



- 18** In 2000 the price of a rail ticket was £120.  
By 2015 the price of this ticket had increased by 45%.

Work out the price of the ticket in 2015.

£ ..... [3]

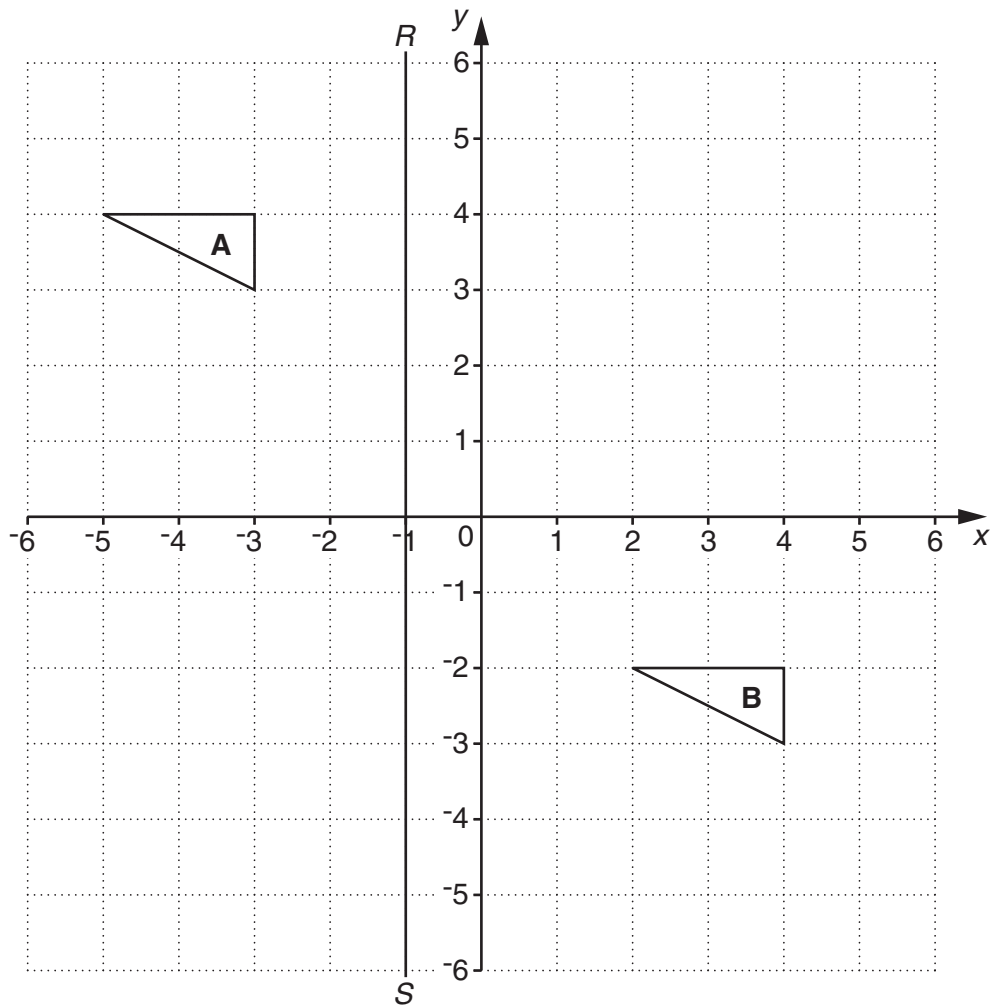
- 19** Each week there is a lottery.  
This table summarises the lottery prizes paid out in one week.

Prize (£)	Number of winners
100	1
10	5
5	6
1	8
<b>Total</b>	<b>20</b>

Work out the mean prize that week.

£ ..... [3]

20 The diagram is on a one-centimetre square grid.



(a) Reflect triangle **A** in the line *RS*.  
Label the image **C**. [1]

(b) Describe the **single** transformation that maps triangle **A** onto triangle **B**.  
..... [2]

(c) Rotate triangle **A**  $90^\circ$  anticlockwise about  $(0, 0)$ .  
Label the image **D**.  
Reflect the image **D** in the line  $y = -2$ .  
Label this image **E**. [4]

21 (a) Here are the first four terms of a sequence.

19 15 11 7

(i) Write down the next two terms of this sequence.

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

(ii) Explain how you worked out your answer.

..... [1]

(b) Here are the first six terms of another **arithmetic** sequence.  
Some of the numbers are missing.

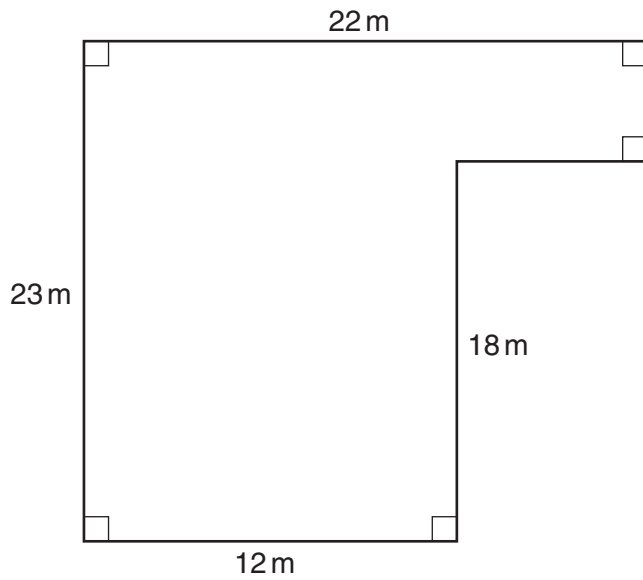
2						37
---	--	--	--	--	--	----

Write an expression for the  $n$ th term of this sequence.

..... [3]

- 22\* The diagram shows Ali's lawn.  
He buys packets of fertiliser for his lawn.  
Each packet is sufficient for  $20 \text{ m}^2$ .

Work out how many packets he should buy.



**Not to scale**

..... [5]

**END OF QUESTION PAPER**