

Friday 4 November 2016 – Morning

GCSE MATHEMATICS B

J567/02 Paper 2 (Foundation Tier)

Candidates answer on the Question Paper.

OCR supplied materials:

None

Other materials required:

- Geometrical instruments
- Tracing paper (optional)
- Scientific or graphical calculator

Duration: 1 hour 30 minutes



Candidate forename		Candidate surname	
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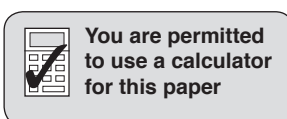
Centre number						Candidate number				
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INSTRUCTIONS TO CANDIDATES

- 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 bar codes.

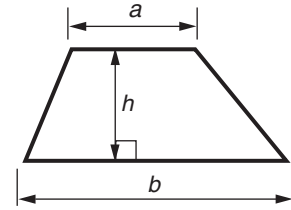
INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
- 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.

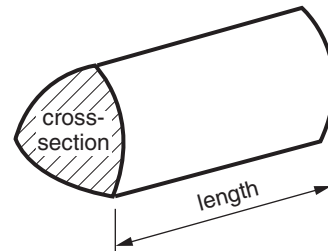


Formulae Sheet: Foundation Tier

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



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



PLEASE DO NOT WRITE ON THIS PAGE

Answer **all** the questions.

- 1 (a) (i) Round 43 to the nearest ten.

(a)(i) [1]

- (ii) Round 674 to the nearest hundred.

(ii) [1]

- (b) Calculate.

(i) $546 - 27 \times 3$

(b)(i) [1]

(ii) $9.87 \div 1.2$

Give your answer correct to 2 decimal places.

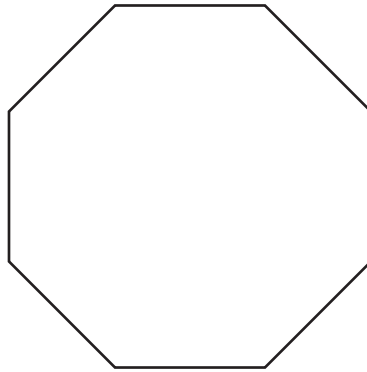
(ii) [2]

- (c) Drinks cost 85p each.
Mia has £10 and buys as many drinks as she can.

How many drinks can she buy?

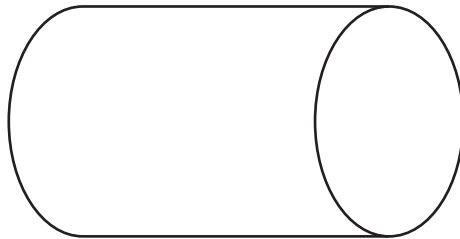
(c) [2]

2 (a) What is the mathematical name of this shape?



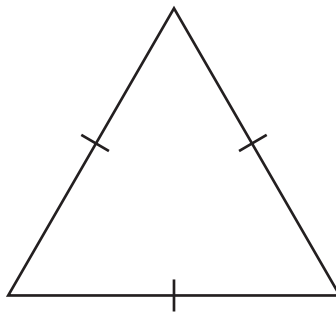
(a) [1]

(b) What is the mathematical name of this solid?



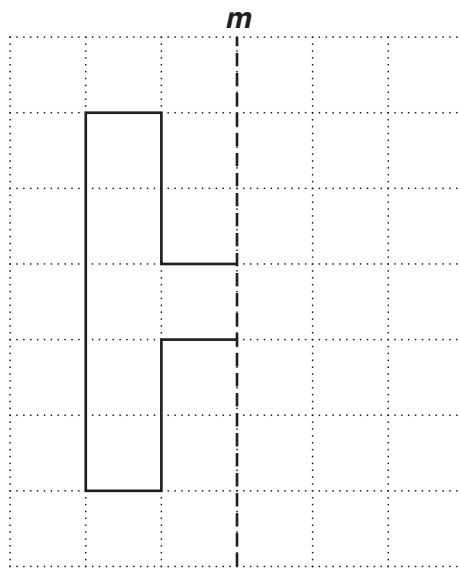
(b) [1]

(c) What is the mathematical name of this type of triangle?



(c) [1]

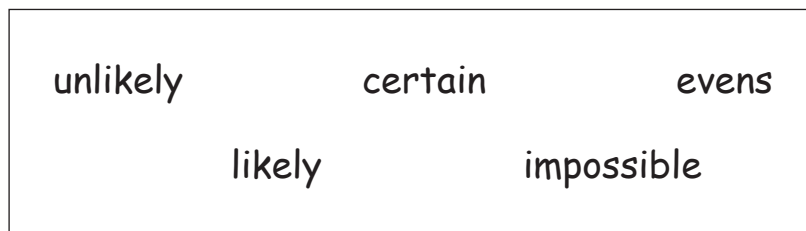
- 3 Reflect the shape in the line *m*.



[2]

- 4 There are 20 tickets in a bag.
10 are pink, 4 are green, 3 are blue, 2 are yellow and 1 is red.

One of the tickets is picked at random.



Choose a word from the box above to complete each of the following sentences.

- (a) It is that the ticket is pink. [1]
- (b) It is that the ticket is white. [1]
- (c) It is that the ticket is yellow. [1]

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

5 9 13 17

- (i) What is the next term of the sequence?

(a)(i) [1]

- (ii) Explain how you worked out your answer.

..... [1]

- (b) Here is the rule to find the next term of another sequence.

Multiply the previous term by 4 then subtract 3.
--

The first term of this sequence is 12.

Work out the next term.

(b) [2]

- 6 (a) Write 7% as a decimal.

(a) [1]

- (b) Write $\frac{23}{50}$ as a percentage.

(b) % [1]

7 This is the bus timetable from Snowton to Bullmarsh.

Snowton	07 10	10 20	14 45	17 40	19 50
Eastville	07 22	10 32	↓	17 52	20 02
Station	07 46	↓	15 21	18 16	20 26
Condado	08 16	11 26	15 51	↓	20 56
Bullmarsh	08 25	11 35	16 00	18 55	21 05

(a) How many of these buses stop at the station?

(a) [1]

(b) Sian catches the 14 45 bus from Snowton.

What time should it arrive at the station?

(b) [1]

(c) How long does the 17 40 bus from Snowton take to travel to Bullmarsh?

(c) hours minutes [1]

(d) Mario lives in Eastville.
He needs to be in Bullmarsh by 6 pm.

What is the latest bus Mario can catch from Eastville?

(d) [1]

8 Choose the most sensible value from each list to complete the following sentences.

- (a) 350 cm 35 000 km 350 kg 350 km

The distance from Manchester to London is about [1]

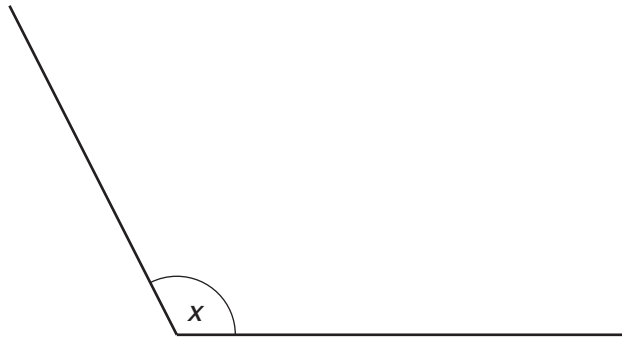
- (b) 3 cm 3 litres 3 ml 3 km

A large carton of milk holds [1]

- (c) 240 cm 240 km 240 m 240 g

The height of a classroom door is about [1]

9 Angle x is drawn on the diagram below.



- (a) Measure angle x .

(a) ° [1]

- (b) Write down the mathematical name of this type of angle.

(b) [1]

- 10** Marianne and Adam each take 5 tests.
Their marks are recorded below.

Marianne 9 7 2 4 8

Adam 10 5 9 6 4

- (a)** Marianne says:

I have an average mark of 6.

Show that she could be correct.

.....
..... [2]

- (b)** Adam says:

I have an average mark of 6.

Show that he could be correct.

.....
..... [2]

11 (a) Write down a factor of 8.

(a) [1]

(b) Write down a prime number between 40 and 50.

(b) [1]

(c) Work out.

(i) $(-4)^2$

(c)(i) [1]

(ii) $7^3 - 20^2$

(ii) [2]

(d) Write the following in order of size, starting with the smallest.

6.842 6.24 6.284 6.4 6.48

(d) [2]
smallest

12 Here are some ingredients for lamb curry.

Lamb Curry	
Serves 4 people	
60 g	butter
350 g	lamb
100 g	onion
227 g	tomatoes
175 g	rice
300 ml	stock

(a) (i) Mark is making lamb curry to serve 8 people.

How many grams of onion should he use?

(a)(i) g [1]

(ii) Priya is making lamb curry for 1 person.

How much butter should she use?

(ii) g [1]

(iii) Sally is making lamb curry for 16 people.

How many litres of stock should she use?

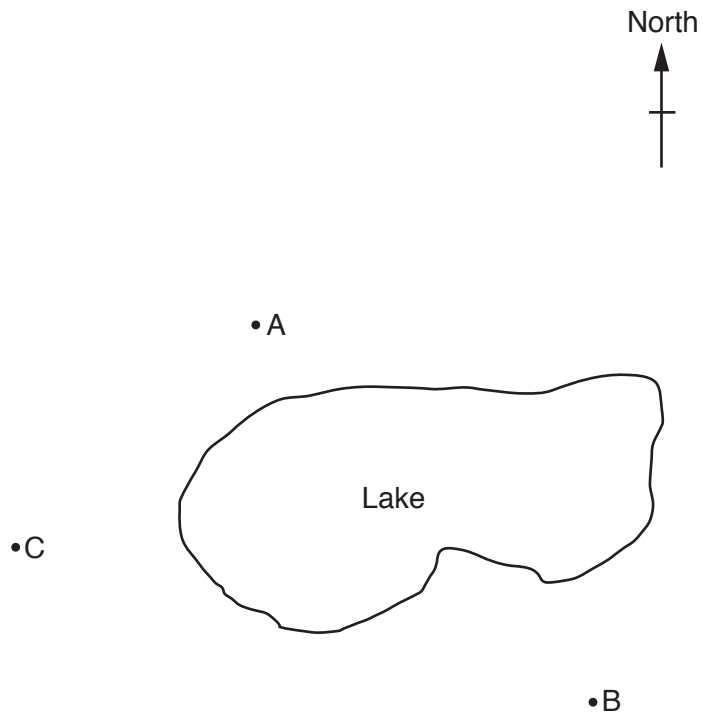
(iii) litres [2]

(b) Hamish has 400 g of rice and plenty of all of the other ingredients.

Can he make lamb curry to serve 10 people?
Explain your answer.

..... [3]

13 The diagram shows the position of three checkpoints on a walk.



(a) Bridget walks from A to B around the lake in an anticlockwise direction.

Draw an arrow on the diagram to show this.

[1]

(b) Measure the bearing of C from B.

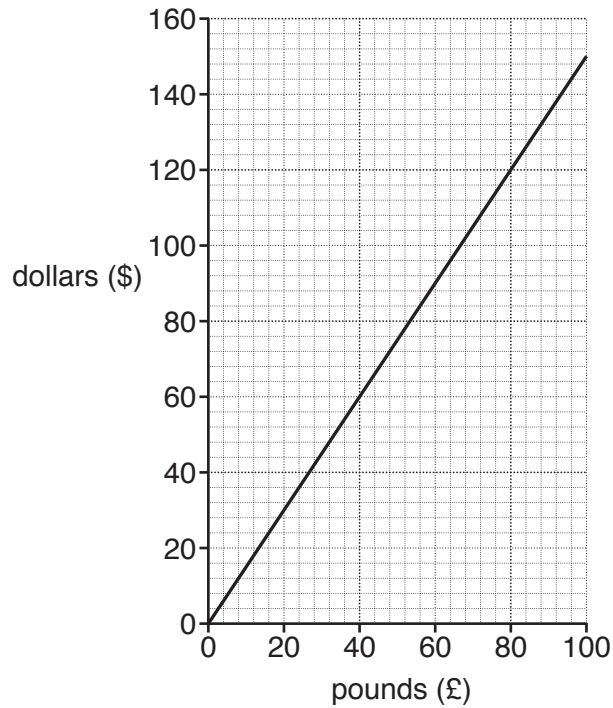
(b)° [1]

(c) On the diagram, checkpoint D is 5 cm from A on a bearing of 310°.

Mark D on the diagram.

[2]

- 14 This conversion graph can be used to convert between pounds (£) and US Dollars (\$).



- (a) Katy changes £80 into dollars.

Use the graph to find how many dollars she gets.

(a) \$ [1]

- (b) Explain how Chris could use the graph to work out how many pounds he should get if he changes \$750 into pounds.

.....
 [1]

- (c) The exchange rate falls to \$1.40 = £1.

Draw a line on the graph to show this. [1]

15 The cost of hiring a car, in pounds, for a number of days is worked out by the following formula.

Multiply the number of days by 24 and then add 11.

(a) (i) Harry hires a car for 7 days.

How much does he pay?

(a)(i) £ [2]

(ii) George has £300 to hire a car.

What is the maximum number of days he can hire a car for?

(ii) [3]

(b) The cost of hiring a satellite navigation system was £56.
The price is reduced by 12%.

Calculate the reduced price.

(b) £ [3]

16 (a) Solve.

(i) $6x = 42$

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

(ii) $8x - 6 = 14$

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

(b) Multiply out.

$4(x - 3y)$

(b) $\dots\dots\dots$ [1]

(c) Factorise.

$5x - 15$

(c) $\dots\dots\dots$ [1]

- 17 A cuboid measures 32 cm by 4 cm by 4 cm.
A cube has the same volume as the cuboid.

Calculate the length of the side of this cube.

..... cm [3]

- 18 Colin records how many minutes late 50 trains arrive at a station.

Number of minutes late	Frequency		
$0 < m \leq 5$	26		
$5 < m \leq 10$	12		
$10 < m \leq 20$	10		
$20 < m \leq 40$	2		

Calculate an estimate of the mean number of minutes the trains arrive late.

..... minutes [4]

19 (a) Complete the table for $y = x^3 + x - 3$.

x	1	2
y		

[2]

(b) Explain why a solution to $x^3 + x - 3 = 0$ lies between $x = 1$ and $x = 2$.

.....

[1]

(c) Use trial and improvement to find the solution to $x^3 + x - 3 = 0$ which lies between $x = 1$ and $x = 2$.
 Give your answer correct to 1 decimal place.

(c) $x =$ [3]

20 The table shows the number of dresses that a shop sells in **one week**.

Dress size	10	12	14	16	18+
Number sold	6	8	22	9	5

(a) Find the percentage of the dresses sold that week that were size 14.

(a) % [2]

(b) Complete the table below to show the relative frequency for each dress size.

Dress size	10	12	14	16	18+
Relative frequency	0.12	0.16		0.18	0.10

[1]

(c) The shop owner is going to order 1600 dresses to sell next year.

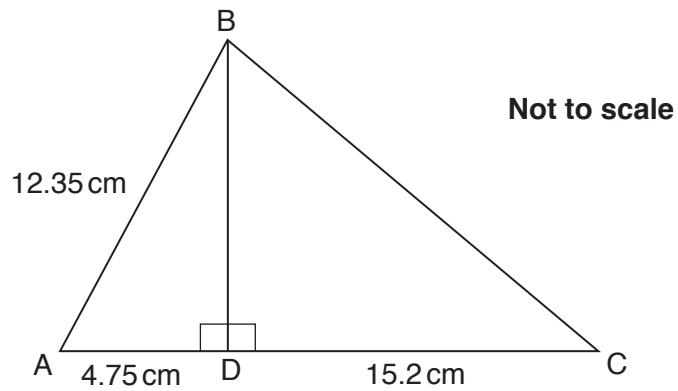
How many of these dresses should be size 10?

(c) [2]

- 21 Find the area of a semicircle that has diameter 8 cm.
Give the units of your answer.

..... [3]

- 22 In the diagram, ABC is a triangle and BD is perpendicular to AC.



AB = 12.35 cm, AD = 4.75 cm and DC = 15.2 cm.

Work out the length BC.

..... cm [5]

TURN OVER FOR QUESTION 23

23* Here is some information about the membership of a tennis club.

- There are 65 members in the club.
- There are 25 male members and 4 of these are left-handed.
- There are 6 left-handed females.

Is the proportion of male members that are left-handed higher than the proportion of female members that are left-handed?

Show how you reached your conclusion.

[6]

END OF QUESTION PAPER

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