OCR
Oxford Cambridge and RSA

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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	

Centre number					Candidate number				

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).
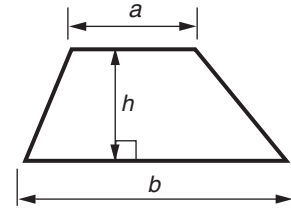* Do **not** write in the bar codes.

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.

You are permitted to use a calculator for this paper
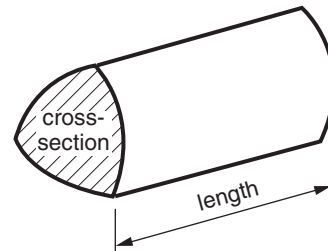
OCR is an exempt Charity

Turn over
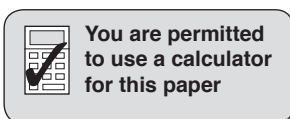
Formulae Sheet: Foundation Tier

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

Volume of prism = (area of cross-section) × 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 × 3

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

(ii) 9.87 ÷ 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?
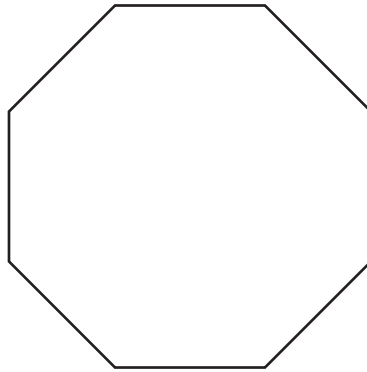
(a) .... **[1]**

(b) What is the mathematical name of this solid?
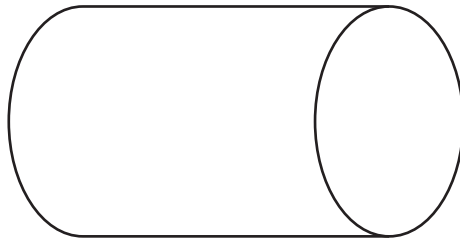
(b) .... **[1]**

(c) What is the mathematical name of this type of triangle?
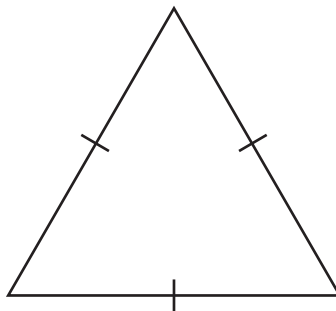
(c) .... **[1]**

3 Reflect the shape in the line *m*.
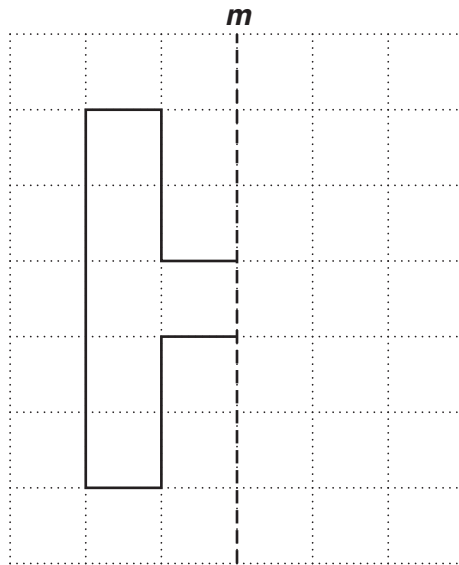
[2]

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.

unlikely	certain	evens
likely	impossible	
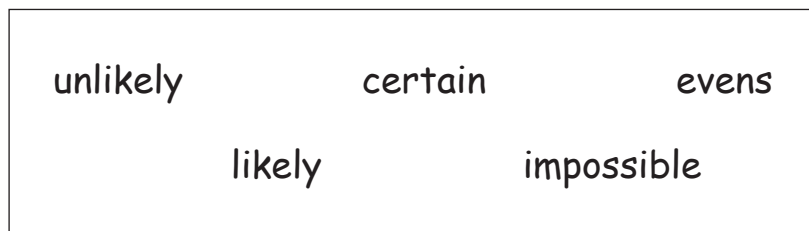
Choose a word from the box above to complete each of the following sentences.

(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.

$$5 \qquad 9 \qquad 13 \qquad 17$$

(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 $\dfrac{23}{50}$ 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]**

Turn over

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.

x
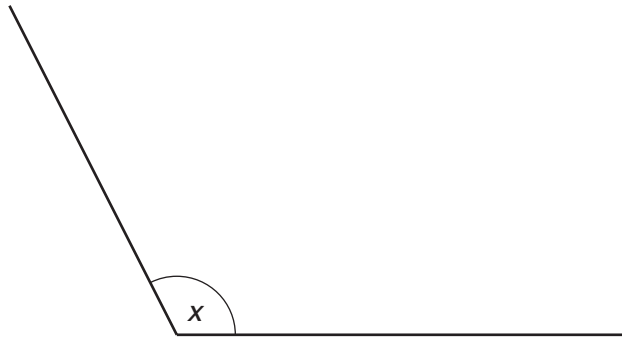
(a) Measure angle x.

(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]**

       Turn over

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.

<div align="center">

6.842   6.24   6.284   6.4   6.48

</div>

(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?
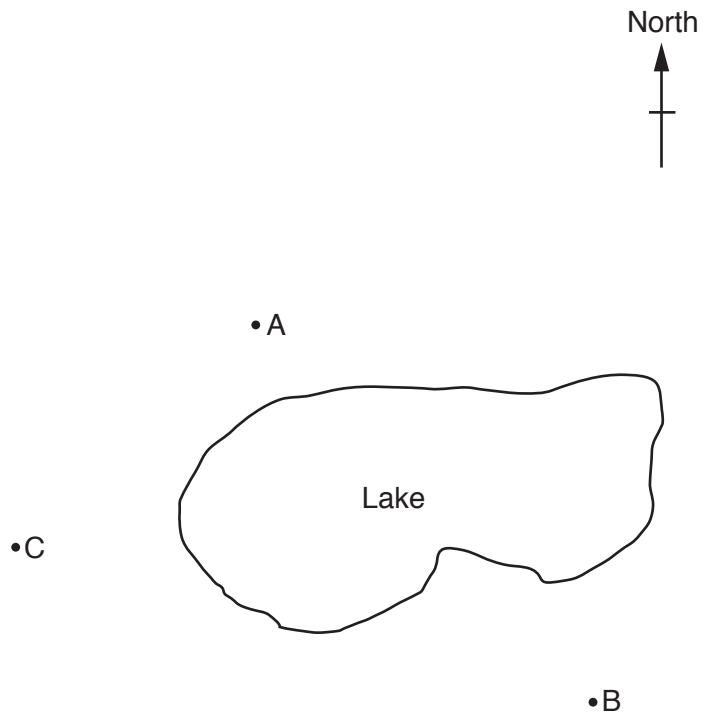
(iii) .... litres **[2]**

(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]**

Turn over

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

North

• A

Lake

• C

• B

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

Draw an arrow on the diagram to show this. **[1]**
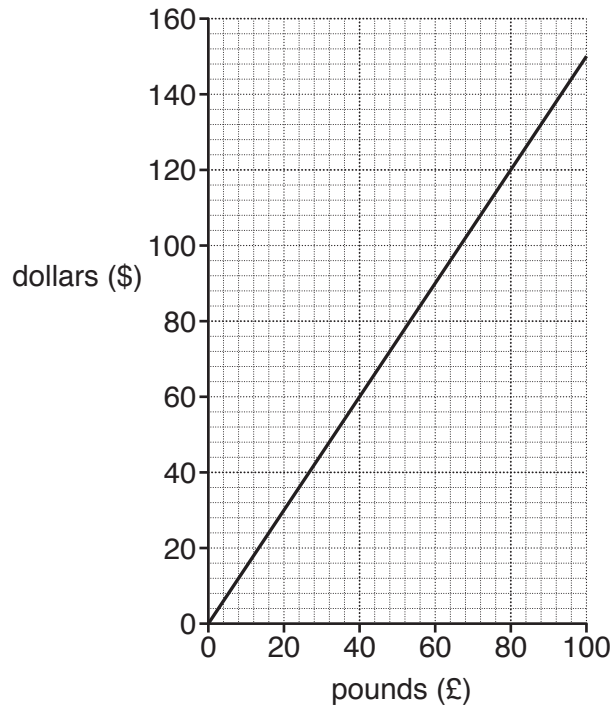
(b) Measure the bearing of C from B.

(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) $x =$ .... **[1]**

    (ii) $8x - 6 = 14$

                                                             (ii) $x =$ .... **[2]**

(b) Multiply out.

    $4 (x - 3y)$

                                                                (b) .... **[1]**

(c) Factorise.

    $5x - 15$

                                                                (c) .... **[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		
$0 < m \leqslant 5$	26		
$5 < m \leqslant 10$	12		
$10 < m \leqslant 20$	10		
$20 < m \leqslant 40$	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.

Not to scale

12.35 cm

B

A   4.75 cm   D   15.2 cm   C
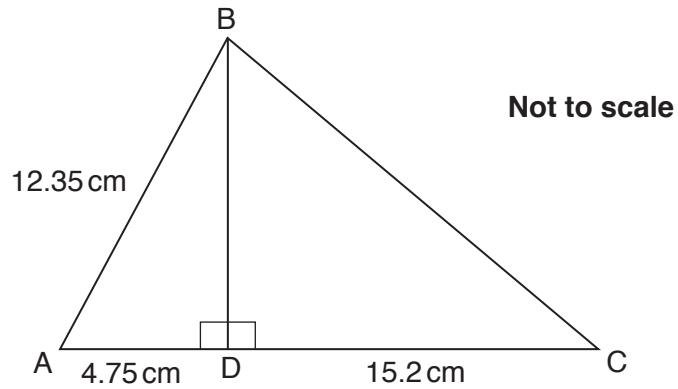
AB = 12.35 cm, AD = 4.75 cm and DC = 15.2 cm.

Work out the length BC.

.... cm **[5]**

TURN OVER FOR QUESTION 23

Turn over

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