

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

INTERNATIONAL GCSE MATHEMATICS CORE

Paper 2C

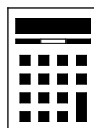
C

Wednesday 13 November 2019 07:00 GMT Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- a calculator
- mathematical instruments.



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.
- If your calculator does not have a π button, take the value of π to be 3.142

Advice

- Show all necessary working; otherwise marks for method may be lost.

For Examiner's Use

Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
TOTAL	



N 0 V 1 9 9 2 6 0 2 C 0 1

Answer **all** questions in the spaces provided.

1 Here are seven numbers.

12 14 16 22 24 24 35

Which of the following is the mode?

Circle your answer.

[1 mark]

21 22 23 24

2 Circle the expression that means 10 less than half of x

[1 mark]

$10 - \frac{x}{2}$ $\frac{x}{2} - 10$ $\frac{10 - x}{2}$ $\frac{x - 10}{2}$

3 Circle the fraction equivalent to $\frac{5}{9}$

[1 mark]

$\frac{7}{11}$ $\frac{15}{18}$ $\frac{20}{36}$ $\frac{25}{81}$



- 4 Rearrange $a = 3 + x$ to make x the subject.
Circle your answer.

[1 mark]

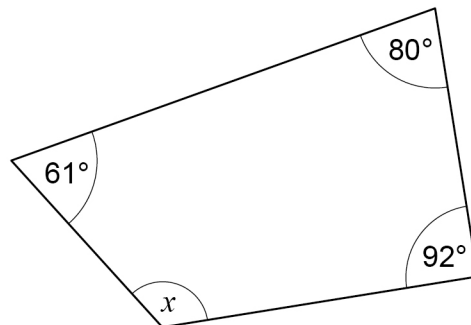
$x = a - 3$

$x = \frac{a}{3}$

$x = 3 - a$

$x = 3 + a$

- 5 Here is a quadrilateral.

Not drawn
accuratelyWork out the size of angle x .

[2 marks]

Answer _____°

Turn over ►



- 6** The whole numbers from 1 to 9 are put in a grid.
1, 4, 5 and 9 have already been put in.
The sum of each row, column and diagonal is the same.
Complete the grid.

[2 marks]

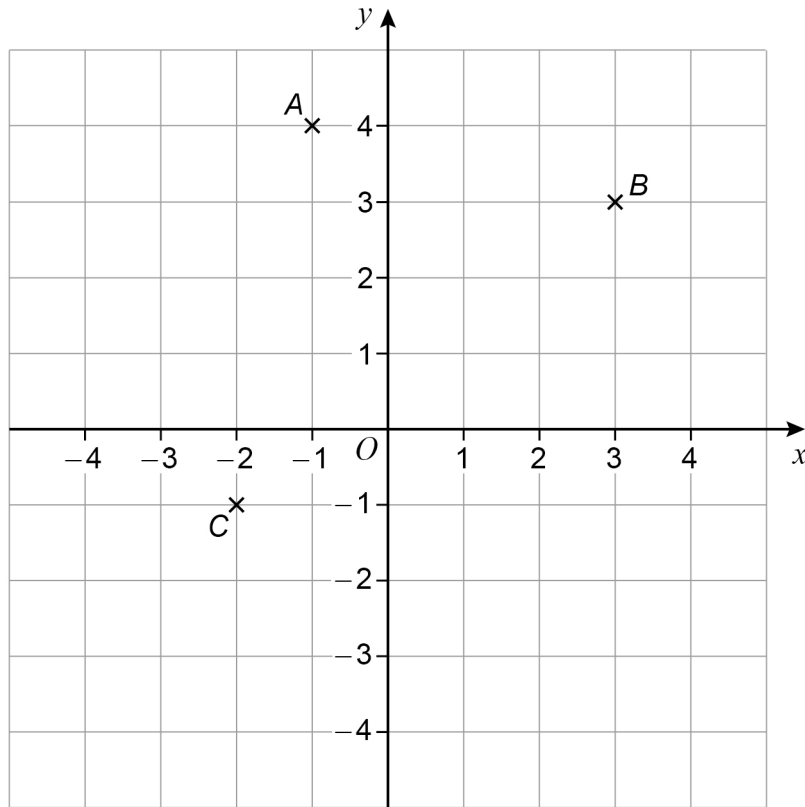
	1	
	5	
	9	4



7 Here is a rule for plotting points.

$$x\text{-coordinate} + y\text{-coordinate} = 3$$

Three points have been plotted on the grid.



Tick a box for each statement.

[3 marks]

	True	False
A fits the rule	☐	☐
B fits the rule	☐	☐
C fits the rule	☐	☐



- 8 A path joins towns P , Q and R .



Emma walks along the path from P to R .

- 8 (a) In total, how many kilometres does she walk?

[2 marks]

Answer _____ km

- 8 (b) Emma takes
4 minutes 30 seconds to walk from P to Q
double this time to walk from Q to R .

Does Emma take less than 14 minutes to walk from P to R ?

You **must** show your working.

[3 marks]



9

 x is a negative number.Tick **one** box for each statement.**[4 marks]**

	Always true	Sometimes true	Never true
$5x$ is negative	☐	☐	☐
$x + 4$ is positive	☐	☐	☐
x^2 is positive	☐	☐	☐
$2 - x$ is negative	☐	☐	☐

Turn over for the next question

Turn over ►



- 10** Two ordinary, fair dice are rolled.
The numbers rolled are multiplied together to make a score.
The table shows some of the scores.

		1st dice					
2nd dice	×	1	2	3	4	5	6
	1	1	2	3	4	5	6
	2	2	4	6	8	10	12
	3	3	6	9	12	15	
	4	4	8	12	16		
	5	5	10	15		25	
	6	6	12				

- 10 (a)** Complete the table.

[2 marks]

- 10 (b)** Katie says,
“The probability that the score is a square number is greater than
the probability that the score is a prime number.”

Is Katie correct?

You **must** show your working.

[2 marks]



- 11 (a)** Faaiz books a flight.
The original price of the flight was \$2040
The price is reduced by 35%
Work out the reduced price.

[3 marks]

Answer \$ _____

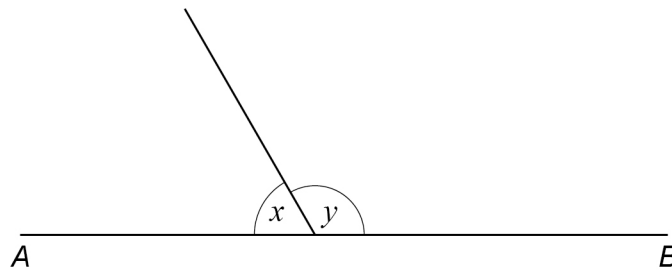
- 11 (b)** The cost to hire a car is \$172 for the first day plus \$38 for each additional day.
Faaiz pays \$400 to hire a car.
For how many days does he hire the car?

[3 marks]

Answer _____



12 AB is a straight line.



Not drawn
accurately

Angle y is 38° larger than angle x .

Work out the size of angle y .

[3 marks]

Answer _____^o

13 Simplify fully $2 \times a \times b + 6a \times b$

[2 marks]

Answer _____



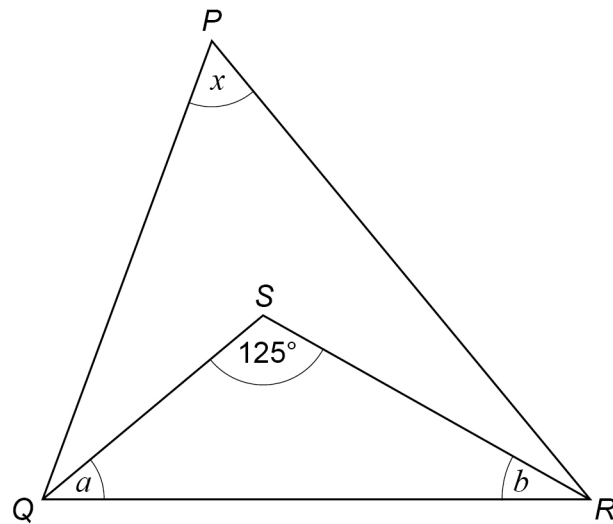
- 14** A store manager buys 25 metres of cable for \$14.99
He sells 9.5 metres of the cable at 88 cents per metre.
The manager does not want to make a loss on the 25 metres of cable.
What is the lowest amount he could charge per metre for the remaining cable? **[4 marks]**

Answer _____ cents

Turn over for the next question



- 15** Here are triangles PQR and SQR .



Not drawn
accurately

- 15 (a)** Work out the value of $a + b$

[1 mark]

Answer _____^o

- 15 (b)** SQ bisects angle PQR .

SR bisects angle PRQ .

Work out the size of angle x .

[2 marks]

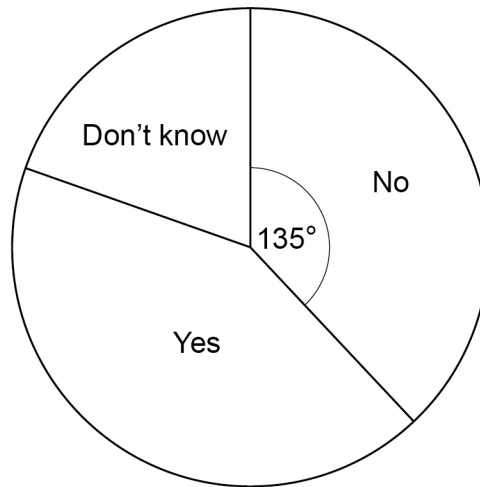
Answer _____^o



16

1800 students were asked if they like coffee.

The pie chart shows the results.

Not drawn
accurately

Twice as many students said "Yes" as said "Don't know".

How many students said "Don't know"?

[3 marks]

Answer _____



17 (a) The International Space Station takes 92 minutes to make an orbit of Earth.

How many **complete** orbits will be made in 30 days?

[3 marks]

Answer _____

17 (b) The space station travels at a speed of 2.76×10^4 km/h

Work out the distance it travels in 7 days.

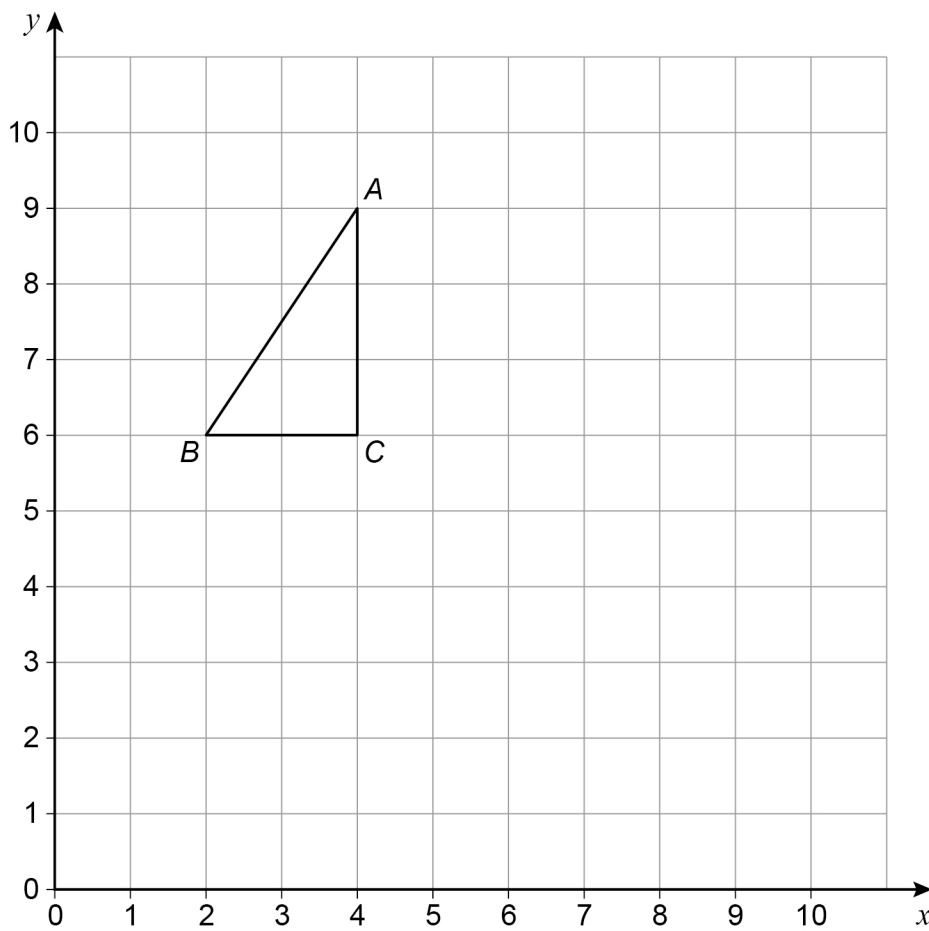
Give your answer to 3 significant figures.

[3 marks]

Answer _____ km



18

Here is triangle ABC .A **single** transformation of triangle ABC is such thatpoint A and point C do **not** movepoint B does move.

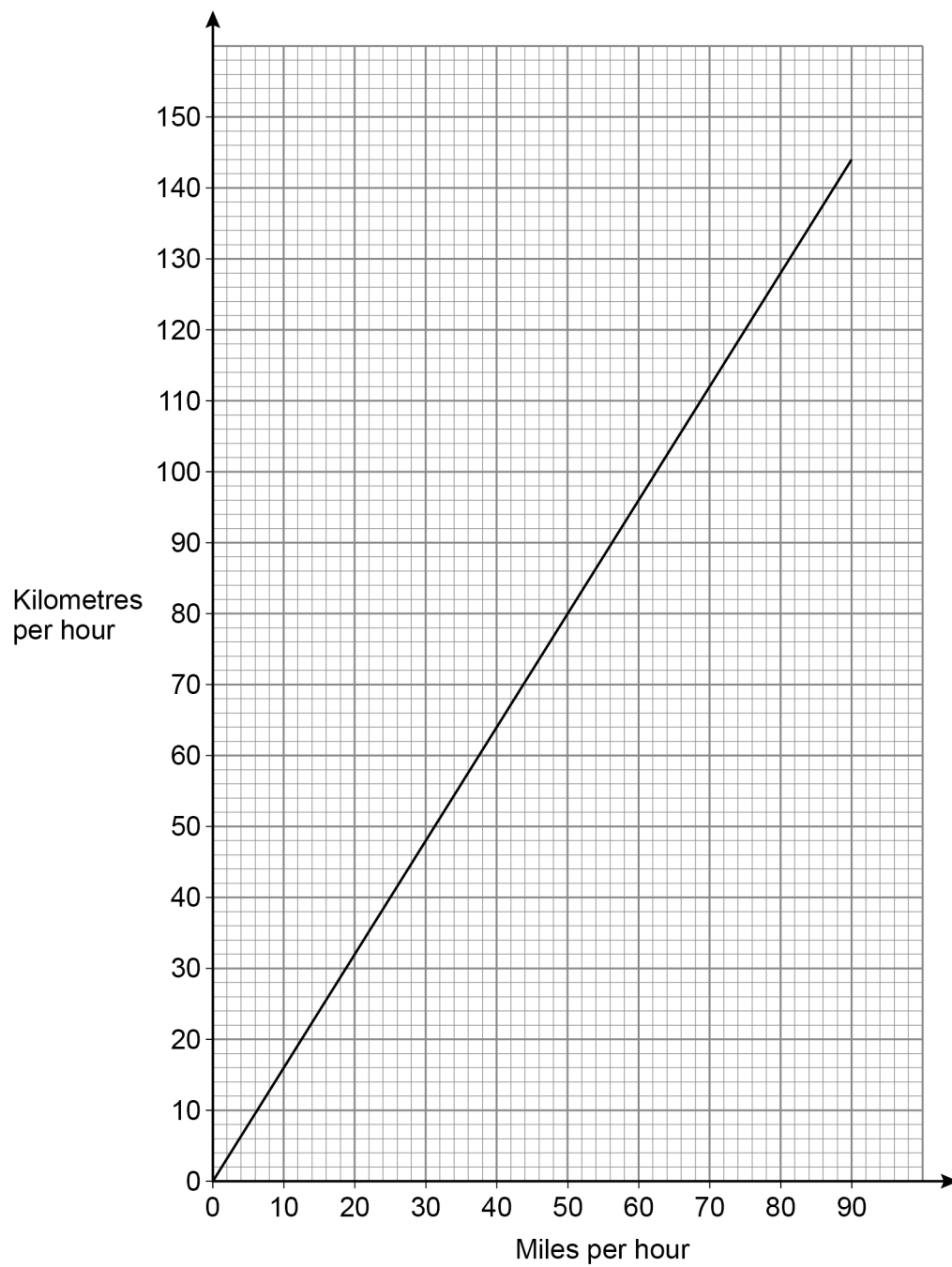
Describe fully the transformation.

[2 marks]



19

Here is a conversion graph.



- 19 (a)** The speed limit in the UK is 70 miles per hour.
The speed limit in Thailand is 120 kilometres per hour.
Which speed limit is higher?
You **must** show your working, which may be on the graph.

[2 marks]

Answer _____

- 19 (b)** The formula to convert miles per hour (x) into kilometres per hour (y) is
 $y = Ax$ where A is a constant.

Work out the value of A .**[2 marks]**

Answer _____



20

The table shows information about the heights, in centimetres, of some women.

Height, h (cm)	Frequency
$150 \leq h < 160$	10
$160 \leq h < 170$	34
$170 \leq h < 180$	32
$180 \leq h < 190$	11

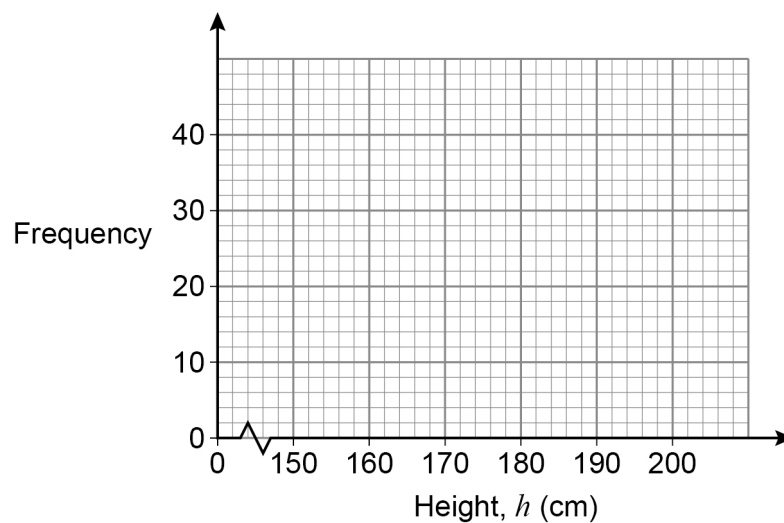
20 (a) Circle the **two** words that describe the data.**[1 mark]**

grouped

ungrouped

discrete

continuous

20 (b) Draw a frequency polygon to represent the data.**[2 marks]**

- 21** Work out 5 as a percentage of 2
Circle your answer.

[1 mark]

2.5%

40%

150%

250%

- 22** Circle the gradient of the line $y = 5x - 7$

[1 mark]

-7

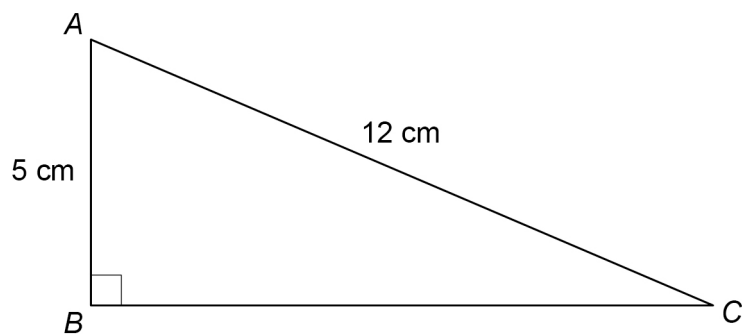
-5

5

7

Turn over for the next question**Turn over ►**

23

Not drawn
accurately

Use Pythagoras' theorem to work out the length BC .

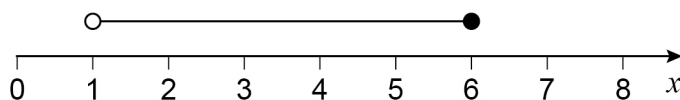
Give your answer as a decimal.

[3 marks]

Answer _____ cm



- 24 (a) The diagram represents an inequality.



Write down the integers that satisfy the inequality.

[2 marks]

Answer _____

- 24 (b) c is an integer.

$$-5 < c < 3$$

Work out the **smallest** possible value of c^3

[1 mark]

Answer _____

Turn over for the next question



25

Here is some information about 80 students.

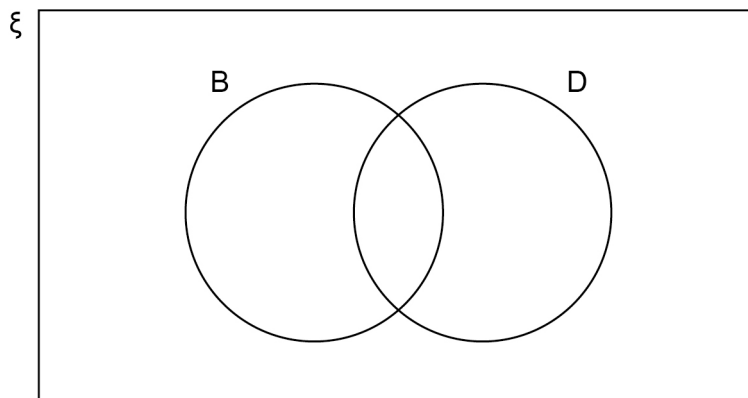
One fifth have brown eyes **and** dark hair.

28 have neither brown eyes **nor** dark hair.

Half of the remaining students have brown eyes.

In total, how many students have brown eyes?

You may use the Venn diagram to help you.

[4 marks]

Answer _____



26 (a) Factorise $9 - x^2$

[1 mark]

Answer _____

26 (b) Work out the value of $x\left(10 + \frac{1}{x}\right)$ when $x = \frac{1}{10}$

[2 marks]

Answer _____

26 (c) Expand $3xy(4x^2 + y^2)$

[2 marks]

Answer _____



27 Some men and some women started a fitness programme.

Three samples of men were taken.

The table shows how many men in each sample completed the programme.

	Number in sample	Number completing programme
Sample A	10	3
Sample B	25	7
Sample C	200	48

27 (a) For **Sample B**, circle the relative frequency of men completing the programme.

[1 mark]

$$\frac{7}{18}$$

$$\frac{7}{25}$$

$$\frac{7}{58}$$

$$\frac{7}{235}$$

27 (b) Of the three samples, the results for **C** give the best estimate of the probability of a man completing the programme.

Give a reason why this is true.

[1 mark]



27 (c)

A sample of 200 women was also taken.

The relative frequency of women completing the programme was 0.38

Based on these samples, who is more likely to complete the programme?

Tick a box.

☐

Men

☐

Women

☐

Equally likely

Show working to support your answer.

[1 mark]

END OF QUESTIONS

There are no questions printed on this page

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outside the
box*

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ANSWER IN THE SPACES PROVIDED**



Question number	<p style="text-align: center;">Additional page, if required. Write the question numbers in the left-hand margin.</p>
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