



Surname \_\_\_\_\_

Other Names \_\_\_\_\_

Centre Number \_\_\_\_\_

Candidate Number \_\_\_\_\_

Candidate Signature \_\_\_\_\_

# GCSE MATHEMATICS

# F

Foundation Tier      Paper 1 Non-Calculator

## 8300/1F

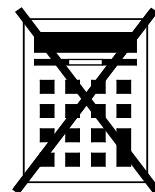
Thursday 2 November 2017      Morning

Time allowed: 1 hour 30 minutes

**For this paper you must have:**

- mathematical instruments.

**You must NOT use a calculator.**



**At the top of the page, write your surname and other names, your centre number, your candidate number and add your signature.**

**[Turn over]**



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## INSTRUCTIONS

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer ALL questions.
- You must answer the questions in the spaces provided. Do not write on blank pages.
- 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.

## ADVICE

- In all calculations, show clearly how you work out your answer.

**DO NOT TURN OVER UNTIL TOLD TO DO SO**



Answer ALL questions in the spaces provided.

- 1 Circle the decimal which has the same value as  $\frac{3}{5}$   
[1 mark]

0.06

0.35

0.6

3.5

- 2 How many millimetres are there in 7.5 centimetres?

Circle your answer. [1 mark]

0.75

70.5

75

750

7500

- 3 Which of these shapes has two lines of symmetry?

Circle your answer. [1 mark]

Semicircle

Rhombus

Trapezium

Isosceles triangle



4 Circle the number that is 7 less than  $-12$  [1 mark]

$-19$

$-5$

$5$

$19$

5 (a) Solve  $x - 3 = 14$  [1 mark]

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$x =$  \_\_\_\_\_

5 (b) Solve  $5y = 45$  [1 mark]

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$y =$  \_\_\_\_\_

[Turn over]



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5 (c) Solve  $8 + w = 6$  [1 mark]

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$w =$  \_\_\_\_\_

7

[Turn over]



6 (a) Work out  $9174 \div 11$  [2 marks]

Answer \_\_\_\_\_



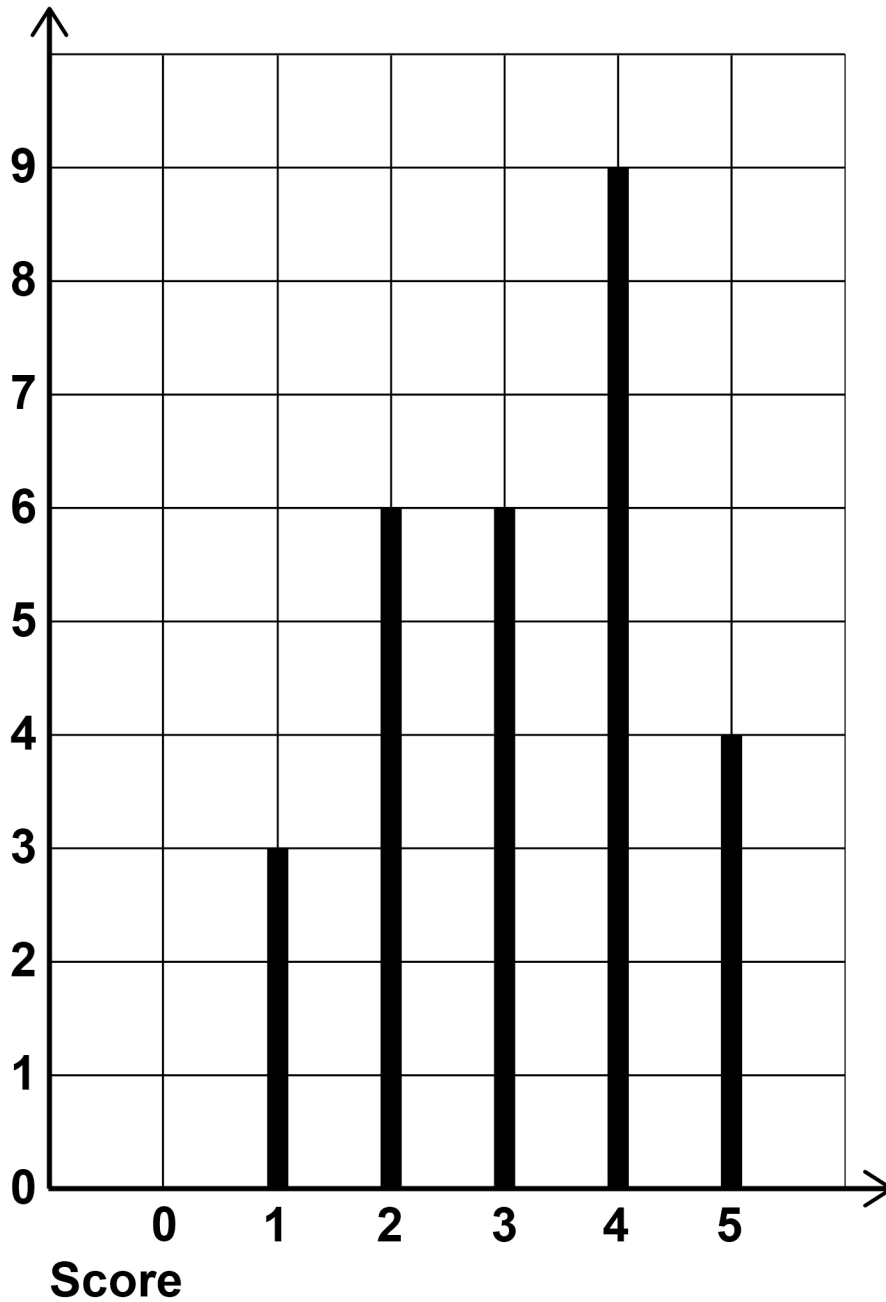




7 The diagram shows the scores given by judges during a television show.

**SCORES**

Frequency



7 (a) Which score was the mode? [1 mark]

Answer \_\_\_\_\_

7 (b) There were 4 judges.

Each judge gave one score in each round.

How many rounds were there? [3 marks]

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Answer \_\_\_\_\_

9

[Turn over]



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- 9 In a game, three stars are hidden at random.  
Each star is behind a different square on this board.

	A	B	C	D	E
1					
2					
3					
4					
5					

- 9 (a) A square is chosen at random.

What is the probability that there is a star behind it? [1 mark]

Answer \_\_\_\_\_



9 (b) In one game, the stars are behind three consecutive squares.

The squares are in one row or one column.

One of the squares is E2

Write down ALL the possible pairs for the other two squares. [2 marks]

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Answer \_\_\_\_\_

6

[Turn over]



- 10 Complete the table to show equivalent fractions and percentages. [3 marks]

Fraction	Percentage
$\frac{1}{2}$	50%
$\frac{3}{10}$	
	43%
$\frac{5}{2}$	

- 11 (a) Cards in a pack are red or blue in the ratio

$$\text{red : blue} = 2 : 3$$

What fraction of the cards are RED?

Circle your answer. [1 mark]

$$\frac{5}{6}$$

$$\frac{2}{3}$$

$$\frac{2}{5}$$

$$\frac{3}{5}$$





11 (b) A different pack has 72 cards.

$\frac{5}{9}$  are yellow.

Work out the number of yellow cards. [2 marks]

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Answer \_\_\_\_\_

6

[Turn over]



**12 (a) How many edges are there on a square-based pyramid?**

**Circle your answer. [1 mark]**

**4**

**5**

**8**

**12**

**12 (b) How many faces of a triangular prism are triangles?**

**Circle your answer. [1 mark]**

**2**

**3**

**4**

**5**



13 A bus can be early, on time or late.

The probability that the bus is early is 0.1

The probability that the bus is on time is 0.6

Work out the probability that the bus is late.  
[2 marks]

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Answer \_\_\_\_\_

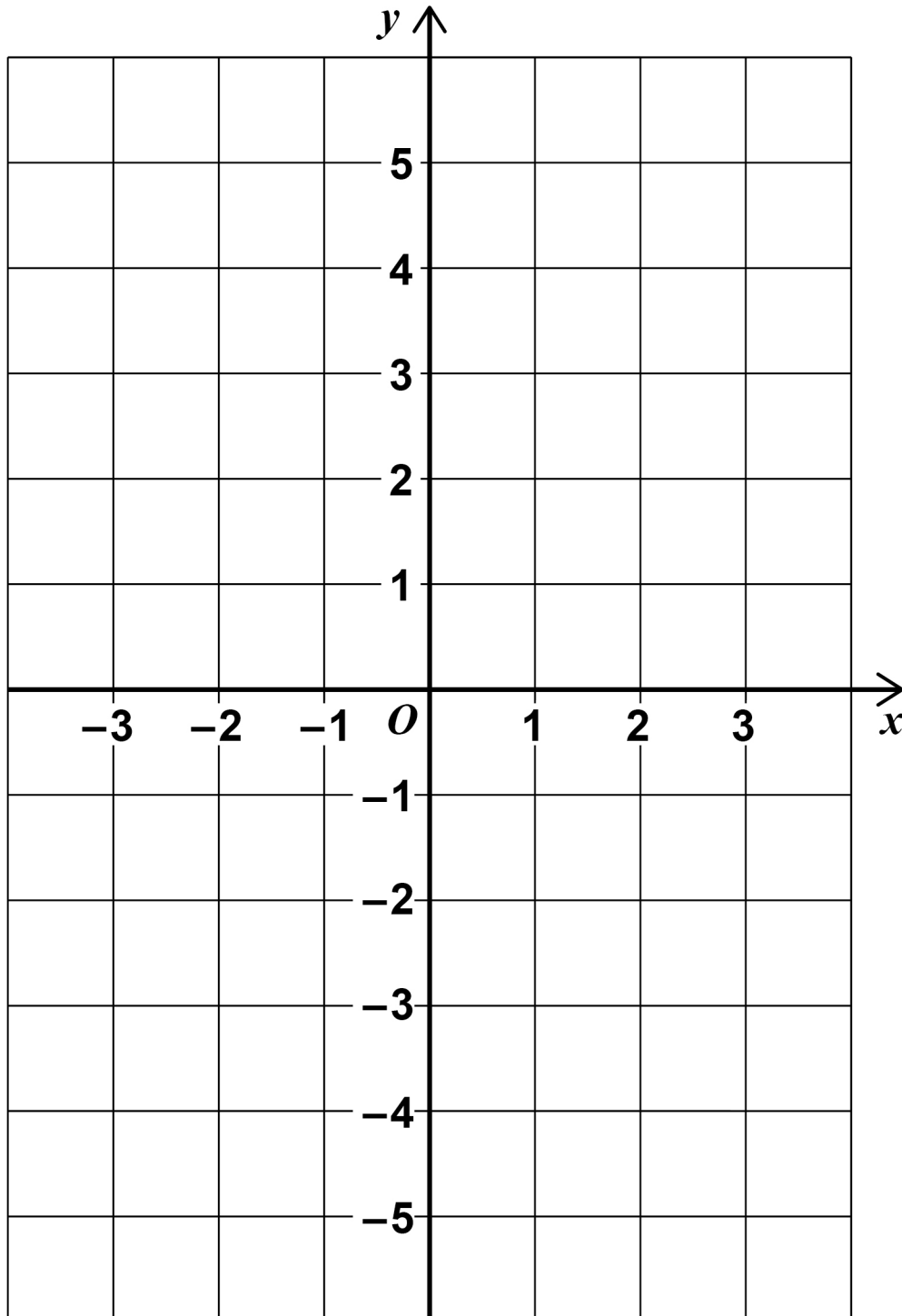
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- 14 On the grid, draw the graph of  $x + y = 2$  for values of  $x$  from  $-3$  to  $3$  [2 marks]



6

[Turn over]





- 16 Complete the grid so that when you multiply the three numbers in any column, row or diagonal the answer is 1 [3 marks]

10		$\frac{1}{2}$
$\frac{1}{20}$		20
2	5	

6

[Turn over]



**17 A sequence has three terms.  
The term-to-term rule for the sequence is  
multiply by 8 and then add 11**

**17 (a) The first term of the sequence is  $-1$**

**Work out the third term. [2 marks]**

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**Answer** \_\_\_\_\_





17 (b) The order of the three terms is reversed to make a new sequence.

Work out the term-to-term rule for this sequence.  
[1 mark]

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Answer \_\_\_\_\_

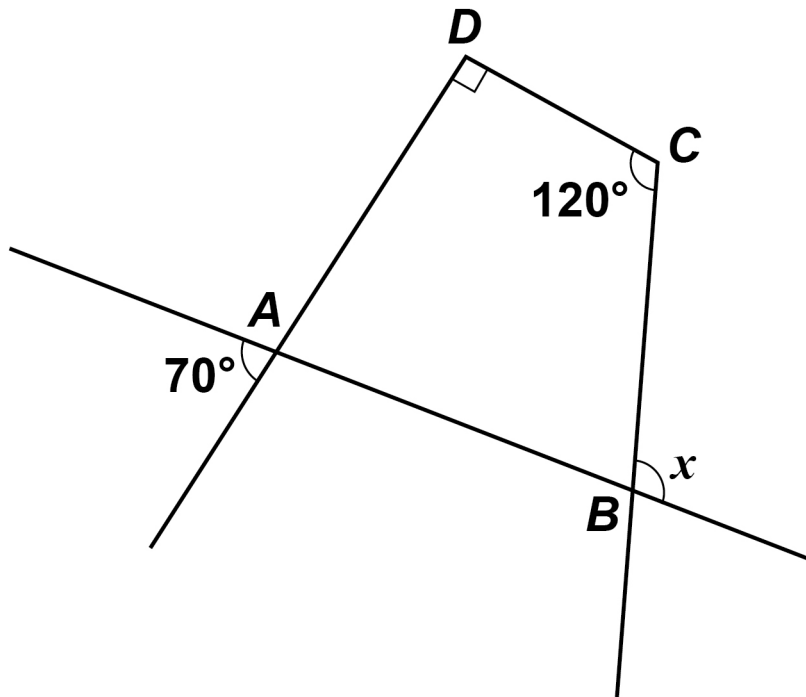
[Turn over]



18  $ABCD$  is a quadrilateral.

It is not drawn accurately.

Sides are extended as shown.





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20  $n$  is an odd number.

$p$  is a prime number.

In each part write down possible values of  $n$  and  $p$  so that

20 (a)  $n + p$  is a square number. [1 mark]

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$n =$  \_\_\_\_\_  $p =$  \_\_\_\_\_



20 (b)  $np$  is a square number. [1 mark]

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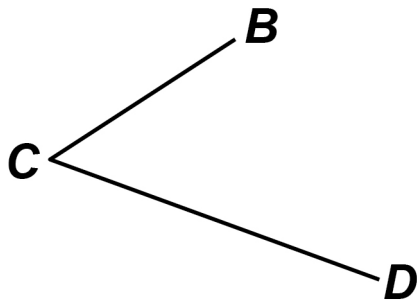
$n =$  \_\_\_\_\_  $p =$  \_\_\_\_\_

5

[Turn over]



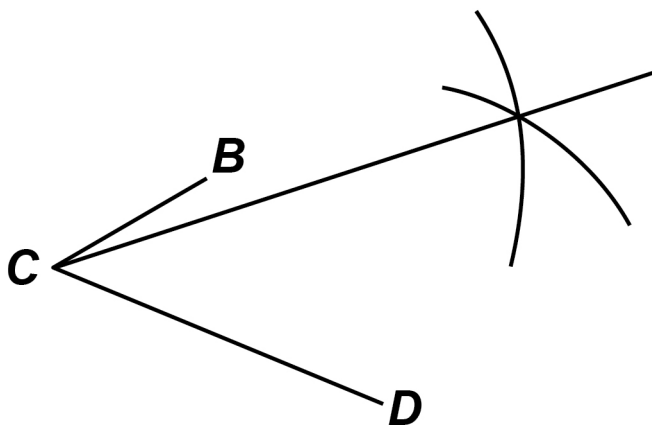
21 (a) Joe wants to bisect angle  $BCD$ .



Here is his method.

Use a pair of compasses to draw arcs of the same radius from  $B$  and  $D$ .

Draw a straight line from  $C$  through the intersection of the arcs.





**Write down the error in his method. [1 mark]**

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**[Turn over]**



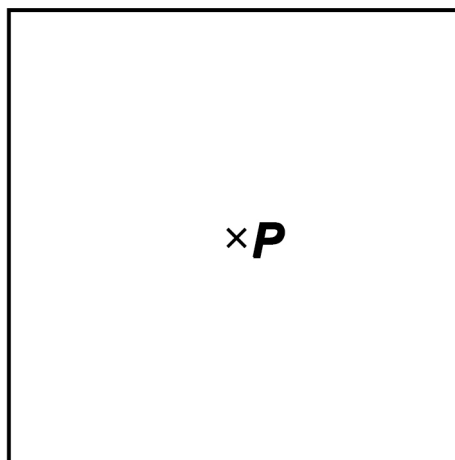
21 (b) Kay wants to show all the points 3 km from point *P*.

Take this line to represent the 3 km. \_\_\_\_\_

×*P*

Here is her answer.

Take this line to represent the 3 km \_\_\_\_\_



What is wrong with her answer? [1 mark]

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2

[Turn over]



21 (c) Here is a rectangle.



Using a pair of compasses and a straight edge, construct ONE line of symmetry.

Show clearly your construction arcs. [2 marks]





23 Anil's home is 1 km from a shop.

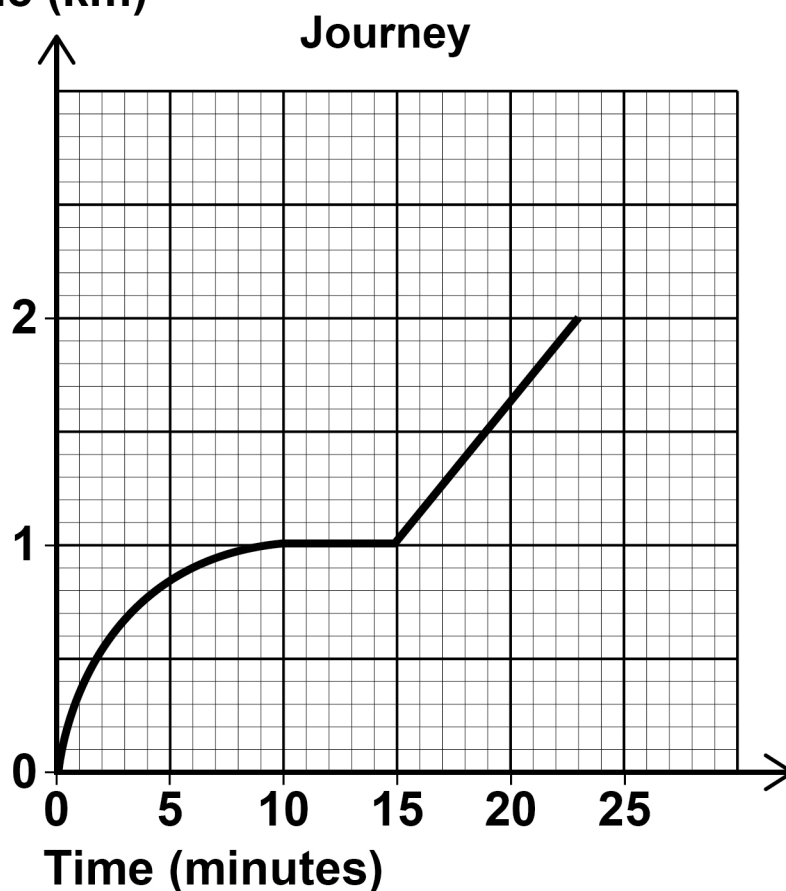
He walked from home to the shop at a constant speed in 10 minutes.

He stayed at the shop for 5 minutes.

He walked home at a constant speed in 8 minutes.

Anil drew this distance-time graph to represent his journey.

Distance from  
home (km)



**Make TWO criticisms of his graph. [2 marks]**

**Criticism 1**

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**Criticism 2**

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**[Turn over]**







- 25 Circle the expression for the range of  $n$  consecutive integers. [1 mark]

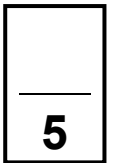
$$\frac{n+1}{2}$$

$$n - 1$$

$$n$$

$$n + 1$$

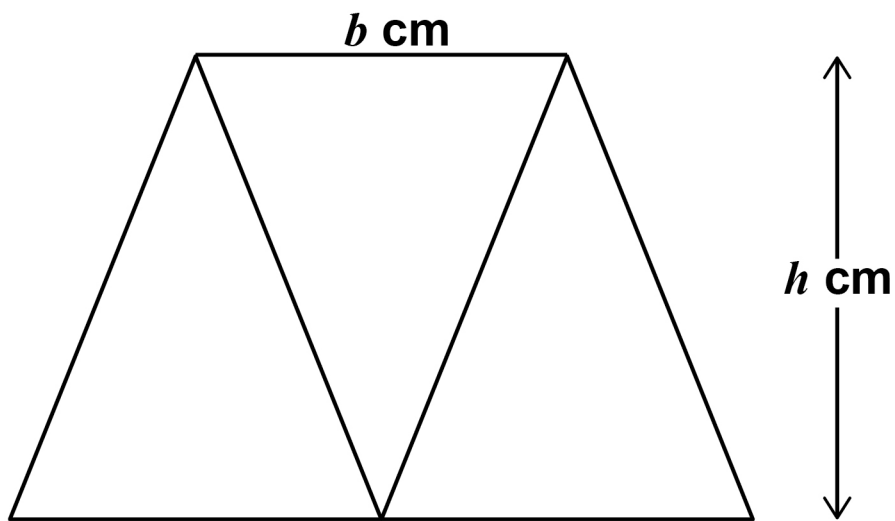
[Turn over]



26 Three identical isosceles triangles are joined to make this trapezium.

Each triangle has base  $b$  cm and perpendicular height  $h$  cm

They are not drawn accurately.



26 (a) Work out an expression, in terms of  $b$  and  $h$ , for the area of the trapezium.

Give your answer in its simplest form. [2 marks]

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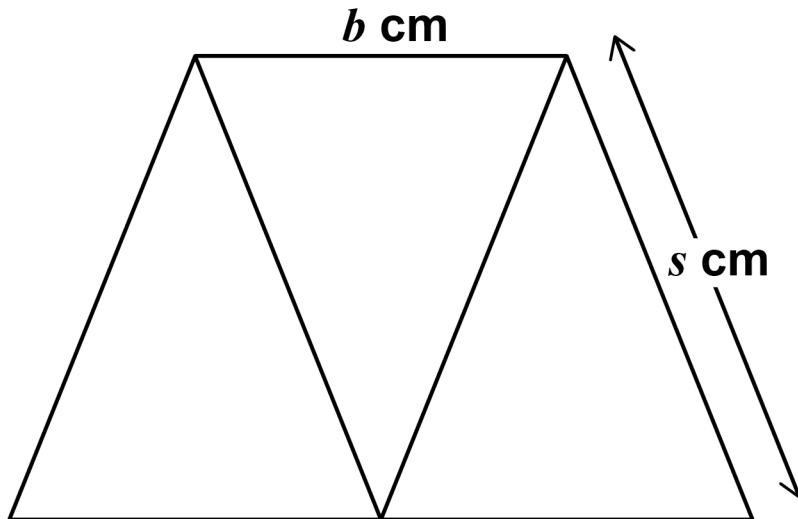
Answer \_\_\_\_\_  $\text{cm}^2$

[Turn over]



26 (b) This diagram shows the same trapezium.

It is not drawn accurately.



$$b : s = 2 : 3$$



Work out an expression, in terms of  $b$ , for the perimeter of the trapezium. [2 marks]

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Answer \_\_\_\_\_ cm

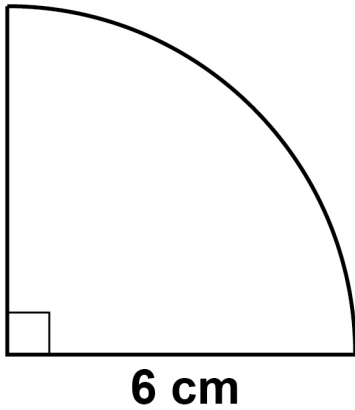
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[Turn over]



27 Here is a quarter circle of radius 6 cm

It is not drawn accurately.



Work out the area of the quarter circle.

Give your answer in terms of  $\pi$ . [2 marks]

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Answer \_\_\_\_\_  $\text{cm}^2$



28 (a) Write in standard form 12 500 [1 mark]

Answer \_\_\_\_\_

28 (b) Write as an ordinary number  $3.4 \times 10^{-2}$   
[1 mark]

Answer \_\_\_\_\_

29 Work out the value of  $(\sqrt{3})^2 \times (\sqrt{2})^2$  [2 marks]

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Answer \_\_\_\_\_

6

[Turn over]

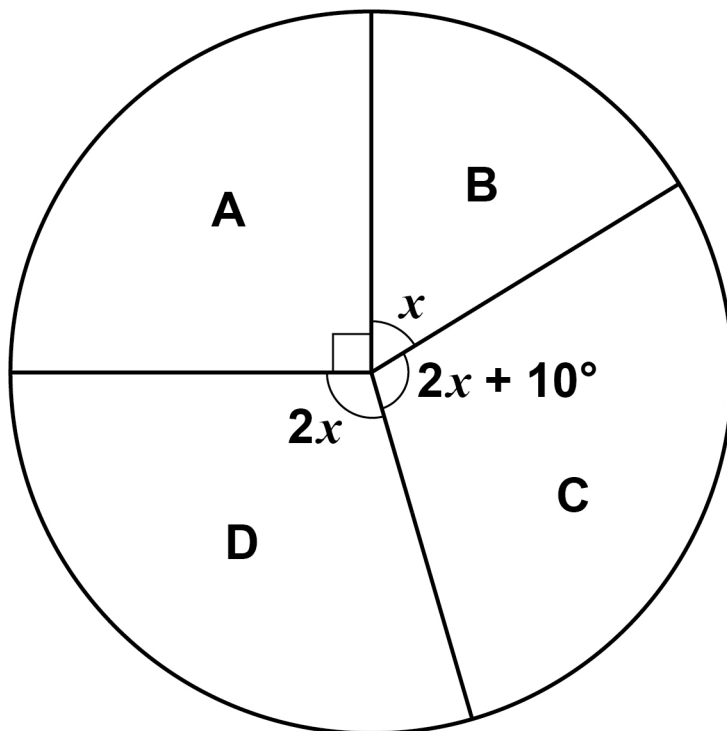


- 30 The four candidates in an election were A, B, C and D.

The pie chart shows the proportion of votes for each candidate.

It is not drawn accurately.

Proportion of votes







31 (a) Factorise  $x^2 - 100$  [1 mark]

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Answer \_\_\_\_\_

31 (b) Solve  $7x + 6 > 1 + 2x$  [2 marks]

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Answer \_\_\_\_\_

7

END OF QUESTIONS



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For Examiner's Use	
Pages	Mark
4–7	
8–11	
13–15	
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18–21	
22–23	
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38–41	
42–45	
46–47	
48–50	
<b>TOTAL</b>	

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