z

AQA

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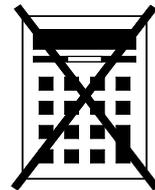
At the top of the page, write your surname and other names, your centre number, your candidate number and add your signature.

[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** $\dfrac{3}{5}$

[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]**

$x =$ _____

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

$y =$ _____

[Turn over]

BLANK PAGE

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

$w =$ _____

<div style="text-align:right">7</div>

[Turn over]

6 (a) Work out 9174 ÷ 11 [2 marks]

Answer _____

6 (b) **Work out** $\dfrac{5}{6} + \dfrac{3}{7}$

Give your answer as a mixed number. **[3 marks]**

_____

_____

_____

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Answer _____

[Turn over]

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

SCORES

Frequency
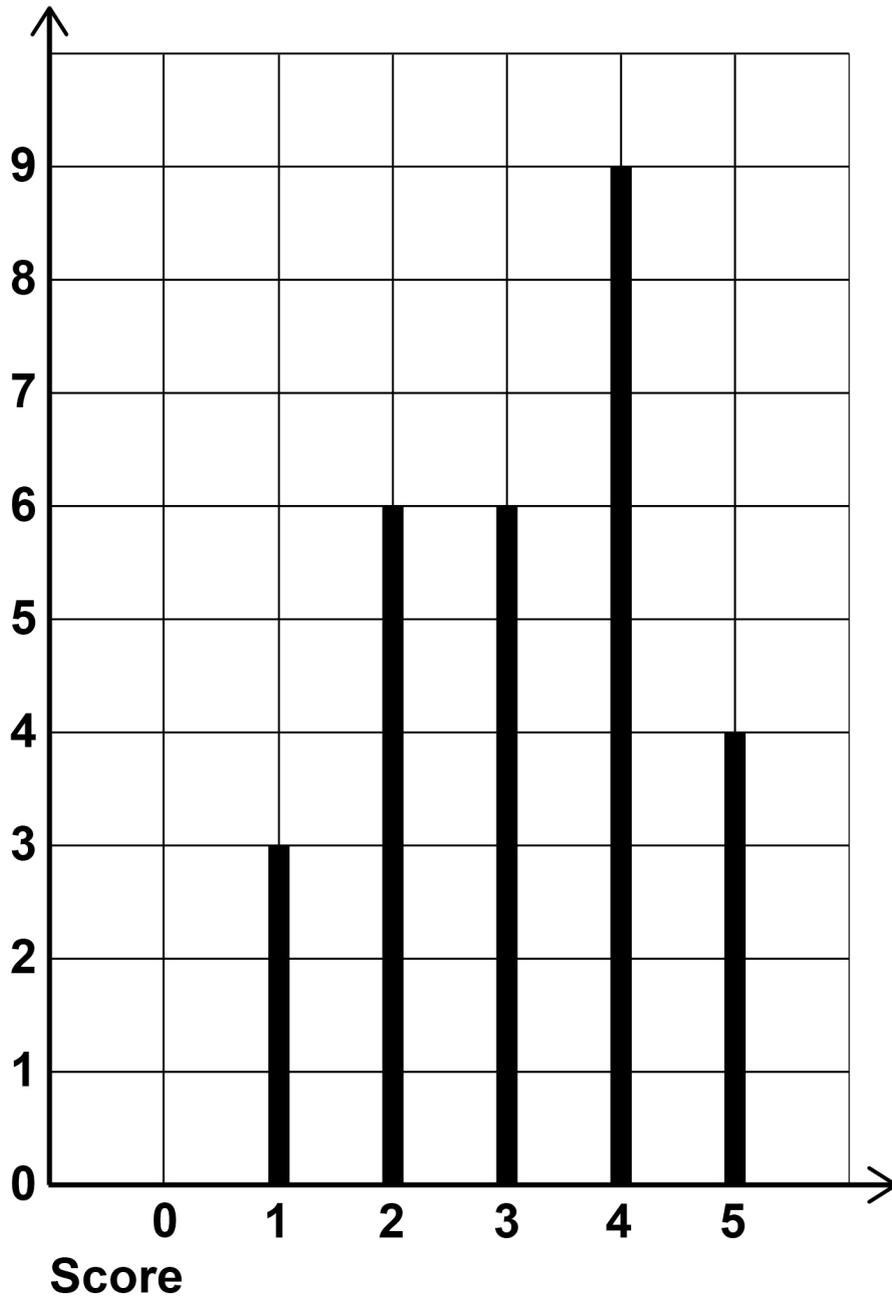
Score

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]

BLANK PAGE

8   **A library book was due to be returned on 27 September.**

It was actually returned on 14 October.

There is a fine of 8p for every day the book is late.

Work out the total fine. [3 marks]

_____

_____

_____

_____

_____

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_____

_____

Answer £ _____

[Turn over]

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]

_____

_____

_____

_____

_____

Answer _____

6

[Turn over]

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

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

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

red : blue = 2 : 3

What fraction of the cards are RED?

Circle your answer. [1 mark]

$\dfrac{5}{6}$ $\dfrac{2}{3}$ $\dfrac{2}{5}$ $\dfrac{3}{5}$

1 6

11 (b) A different pack has 72 cards.

$\dfrac{5}{9}$ **are yellow.**

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

_____

_____

_____

_____

_____

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 _____

[Turn over]

BLANK PAGE

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

[Turn over]

6

15   **5% of a number is 31**

1% of the same number is 6.2

Work out 13% of the number. [3 marks]

_____

_____

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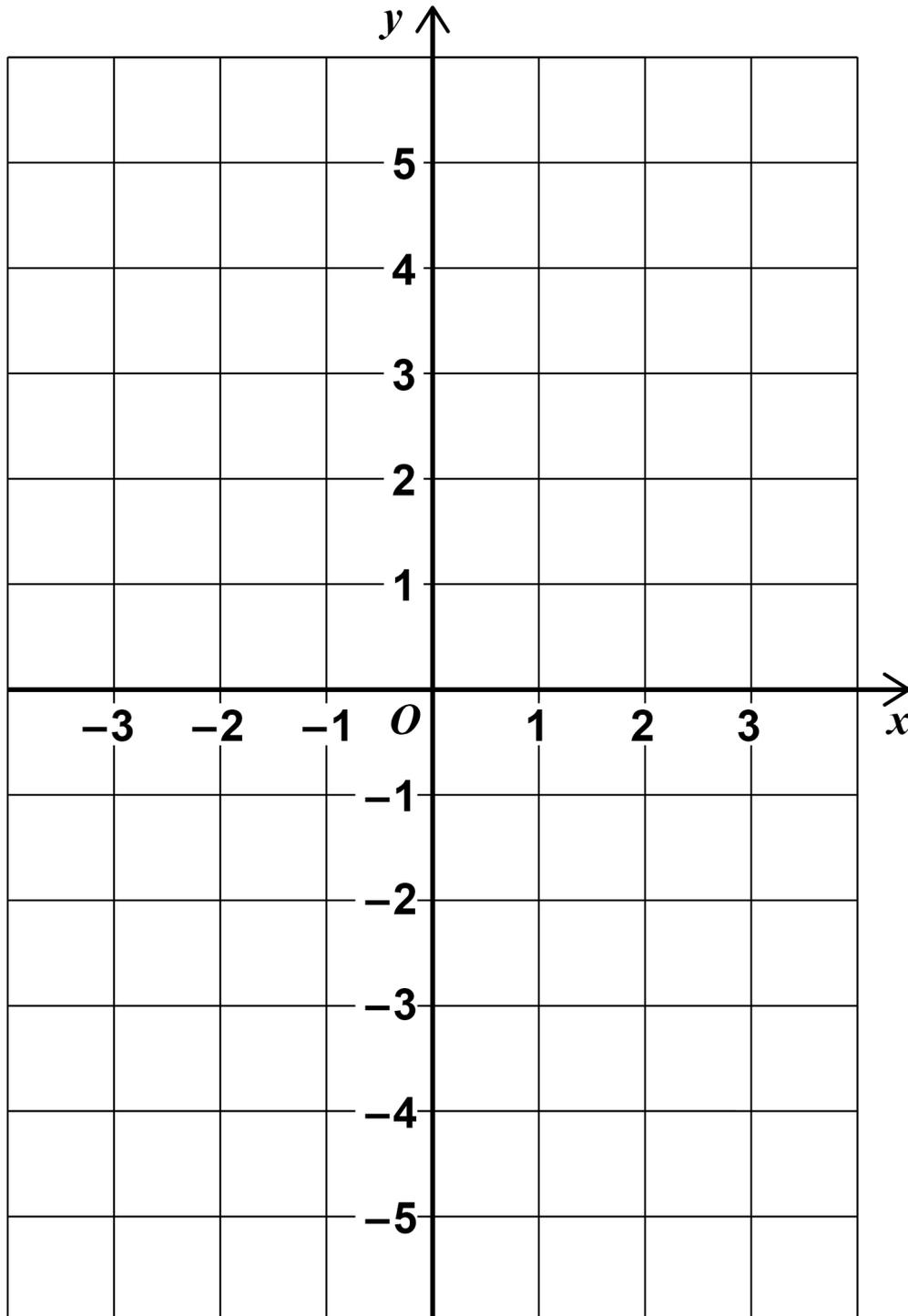
Answer _____

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		$\dfrac{1}{2}$
$\dfrac{1}{20}$		20
2	5	

[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]

_____

_____

_____

_____

_____

_____

_____

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]

_____

_____

_____

Answer _____

[Turn over]

18   *ABCD* is a quadrilateral.

It is not drawn accurately.

Sides are extended as shown.

Show that $x = 100°$ **[3 marks]**

_____

_____

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6

[Turn over]

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19   Use 2 gallons = 9 litres to convert 17 gallons into litres. [3 marks]

_____

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_____

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_____

Answer _____ **litres**
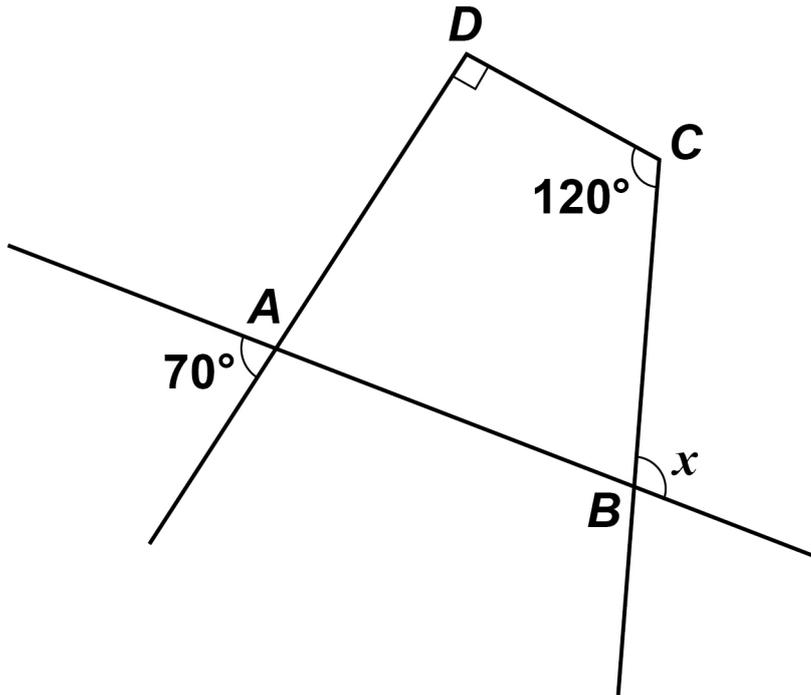
[Turn over]

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]**

_____

_____

_____

_____

_____

n = _____   *p* = _____

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

_____

_____

_____

_____

_____

n = _____ *p* = _____

| 5 |

[Turn over]

21 (a) Joe wants to bisect angle *BCD*.
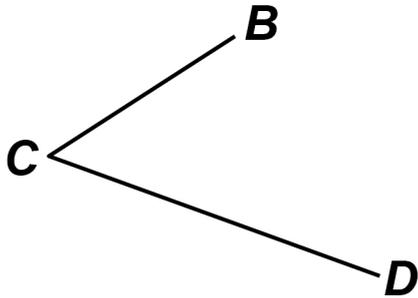
Here is his method.

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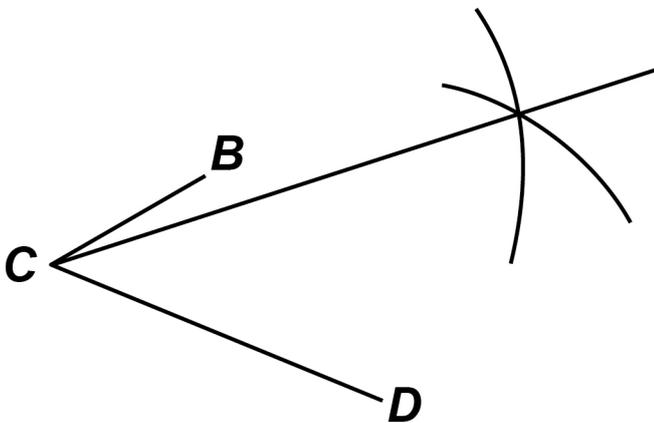
Write down the error in his method. [1 mark]

_____

_____

_____

_____

[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 ———

×*P*
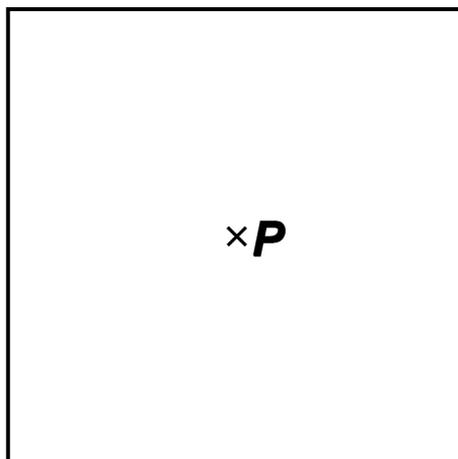
What is wrong with her answer? [1 mark]

_____

_____

_____

_____

_____

2

[Turn over]

21 (c) **Here is a rectangle.**
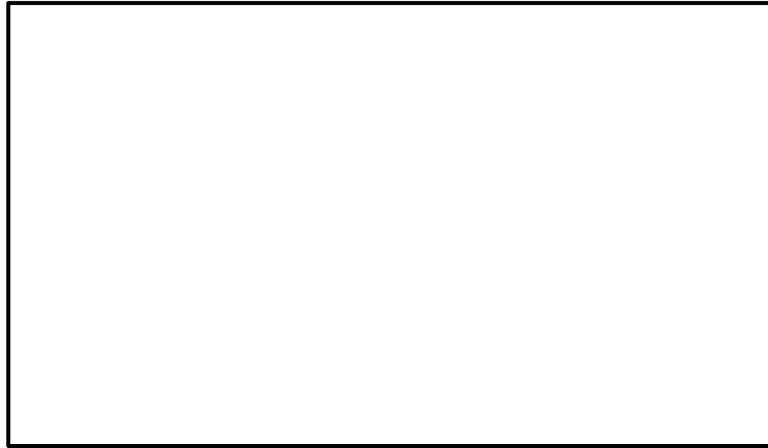
Using a pair of compasses and a straight edge, construct ONE line of symmetry.

Show clearly your construction arcs. [2 marks]

22 $x : y = 7 : 4$

$x + y = 88$

Work out the value of $x - y$ [3 marks]

_____

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_____

Answer _____   **5**

[Turn over]

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)

Journey

Time (minutes)
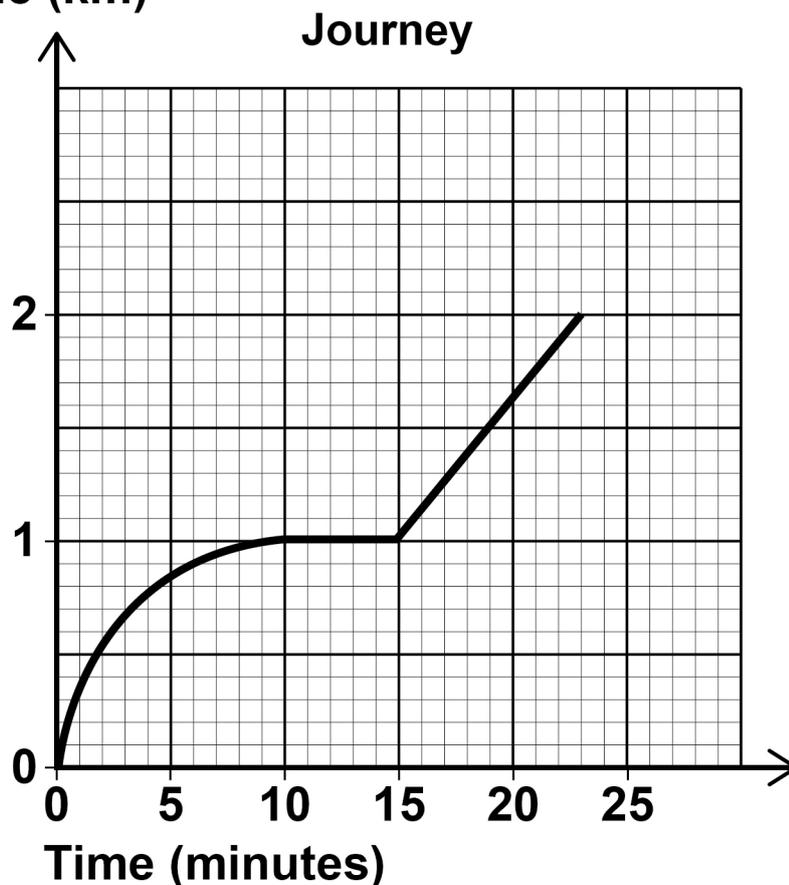
Make TWO criticisms of his graph. [2 marks]

Criticism 1 _____

_____

_____

_____

Criticism 2 _____

_____

_____

_____

[Turn over]

24 **Three WHOLE numbers are each rounded to the nearest 10**

The sum of the rounded numbers is 70

Work out the MAXIMUM possible sum for the original three numbers. [2 marks]

Answer

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

$\dfrac{n+1}{2}$ $\qquad$ $n - 1$ $\qquad$ n $\qquad$ $n + 1$

[Turn over]

5
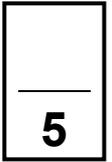
26 Three identical isosceles triangles are joined to make this trapezium.

Each triangle has base b cm and perpendicular height h cm

They are not drawn accurately.
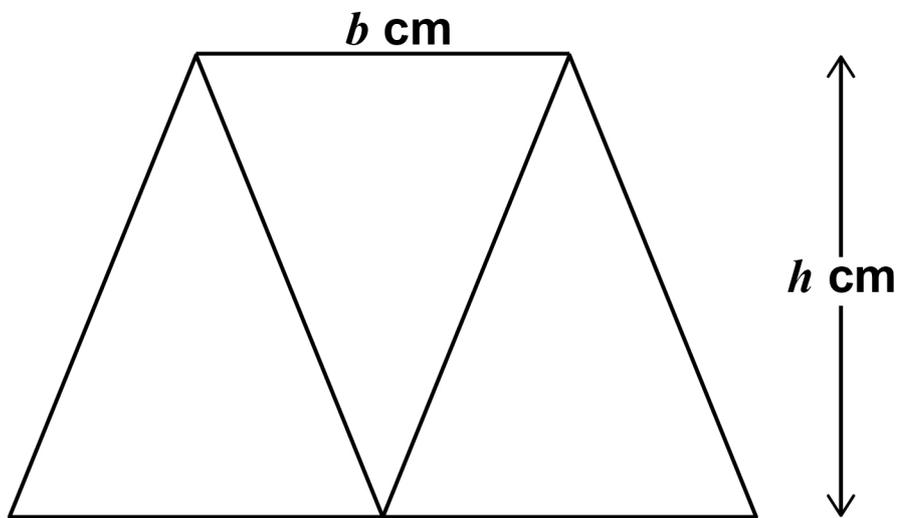
26 (a) **Work out an expression, in terms of b and h, for the area of the trapezium.**

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

_____

_____

_____

_____

_____

_____

Answer _____ **cm^2**

[Turn over]

26 (b) **This diagram shows the same trapezium.**

It is not drawn accurately.

b cm

s cm
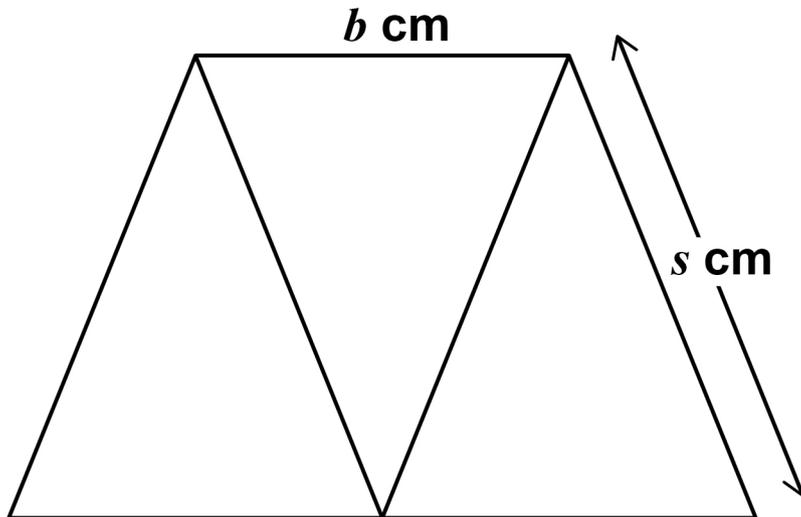
$b : s$ = 2 : 3

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

Answer _____ cm | 4 |

[Turn over]

27 **Here is a quarter circle of radius 6 cm**

It is not drawn accurately.

6 cm
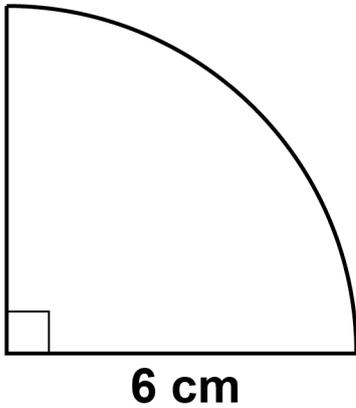
Work out the area of the quarter circle.

Give your answer in terms of π. [2 marks]

Answer _____ cm²

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

Answer _____

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

Answer _____

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

_____

_____

_____

_____

_____

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

Work out the probability that a person who voted, chosen at random, voted for C. [4 marks]

_____

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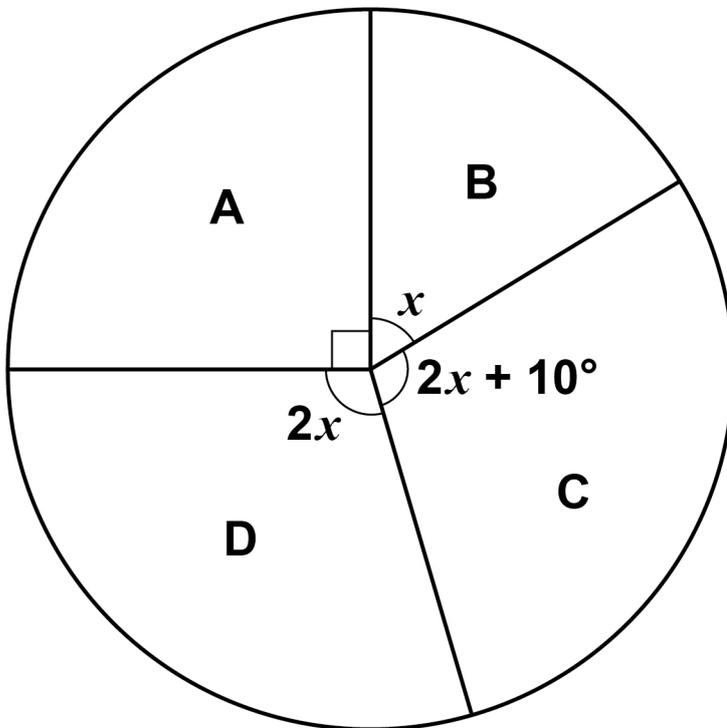
Answer _____

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

_____

_____

Answer _____

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

_____

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_____

_____

_____

_____

Answer _____

7

END OF QUESTIONS

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