

Please write clearly in block capitals.

Centre number

Candidate number

Surname _____

Forename(s) _____

Candidate signature _____

GCSE MATHEMATICS

Past Paper
Website
Home 

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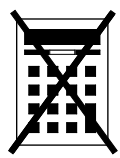
Foundation Tier Paper 1 Non-Calculator

Thursday 2 November 2017 Morning Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- mathematical instruments



You must **not** use a calculator.

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 outside the box around each page or 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

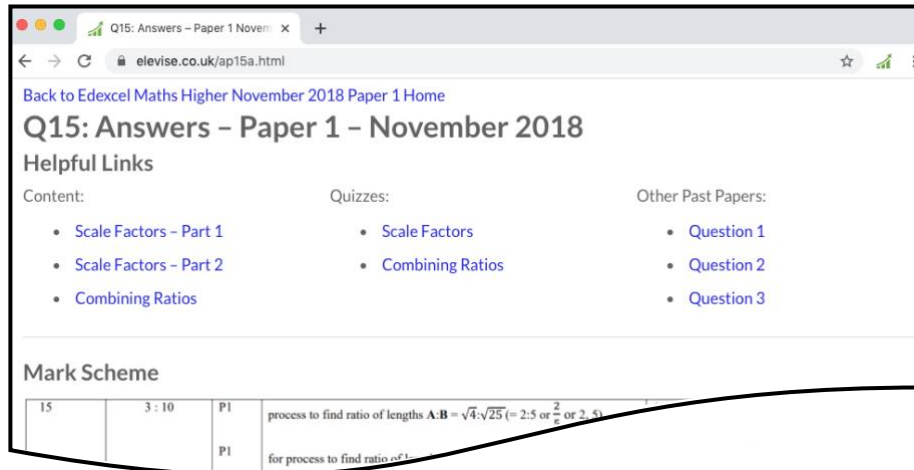
- In all calculations, show clearly how you work out your answer.

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	
26–27	
28–29	
TOTAL	



How the Past Papers work

Every past paper question has a corresponding webpage that has the mark scheme and worked solutions for that particular question. There are also helpful links to content for the concepts used to answer the question, quizzes that you can use to try some of the concepts and similar past paper questions. An example of a webpage for a question is given below:



Q15: Answers - Paper 1 - November 2018

Helpful Links

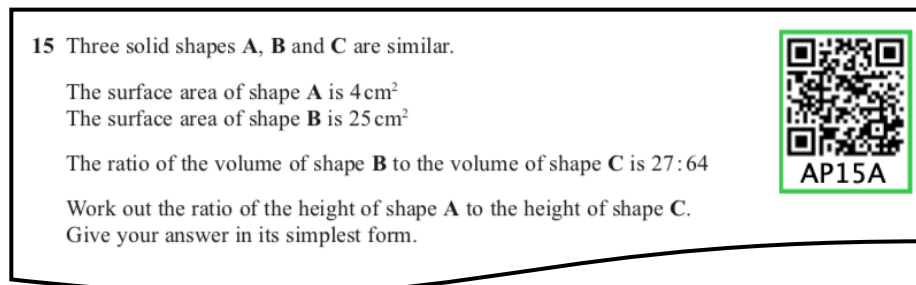
Content:	Quizzes:	Other Past Papers:
<ul style="list-style-type: none">Scale Factors - Part 1Scale Factors - Part 2Combining Ratios	<ul style="list-style-type: none">Scale FactorsCombining Ratios	<ul style="list-style-type: none">Question 1Question 2Question 3

Mark Scheme

Q	Content	Mark	Process
15	3 : 10	P1	process to find ratio of lengths $A:B = \sqrt{4:\sqrt{25}} (= 2:5 \text{ or } \frac{2}{5})$
		P1	for process to find ratio of 1:

How to get to the webpage

Every past paper question has a QR code next to it, such as:




15 Three solid shapes **A**, **B** and **C** are similar.

The surface area of shape **A** is 4 cm^2
The surface area of shape **B** is 25 cm^2

The ratio of the volume of shape **B** to the volume of shape **C** is $27 : 64$

Work out the ratio of the height of shape **A** to the height of shape **C**.
Give your answer in its simplest form.



AP15A

You can get to the corresponding webpage in 3 different ways:

- 1) Scanning the QR code with the camera on a smart phone or tablet.
- 2) Typing the code that is underneath the QR code at the end of www.elewise.co.uk/. For this question, the code is AP15A, so you would type www.elewise.co.uk/AP15A into the address bar to obtain the webpage. If you would like to see the question rather than the answers, you change the A at the end of the code to a Q; you would type www.elewise.co.uk/AP15Q
- 3) Clicking on the QR code if you are viewing the past paper as a PDF or on a web browser.

www.elewise.co.uk



Answer **all** questions in the spaces provided

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

0.06

0.35

0.6

3.5

[1 mark]



- 2 How many millimetres are there in 7.5 centimetres?
Circle your answer.

0.75

70.5

75

750

7500

[1 mark]



- 3 Which of these shapes has two lines of symmetry?
Circle your answer.

Semicircle

Rhombus

Trapezium

Isosceles triangle

[1 mark]



4 Circle the number that is 7 less than -12

-19

-5

5

19

[1 mark]



5 (a) Solve $x - 3 = 14$

$x =$ _____

[1 mark]



5 (b) Solve $5y = 45$

$y =$ _____

[1 mark]

5 (c) Solve $8 + w = 6$

$w =$ _____

[1 mark]



6 (a) Work out $9174 \div 11$

[2 marks]



Answer _____

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

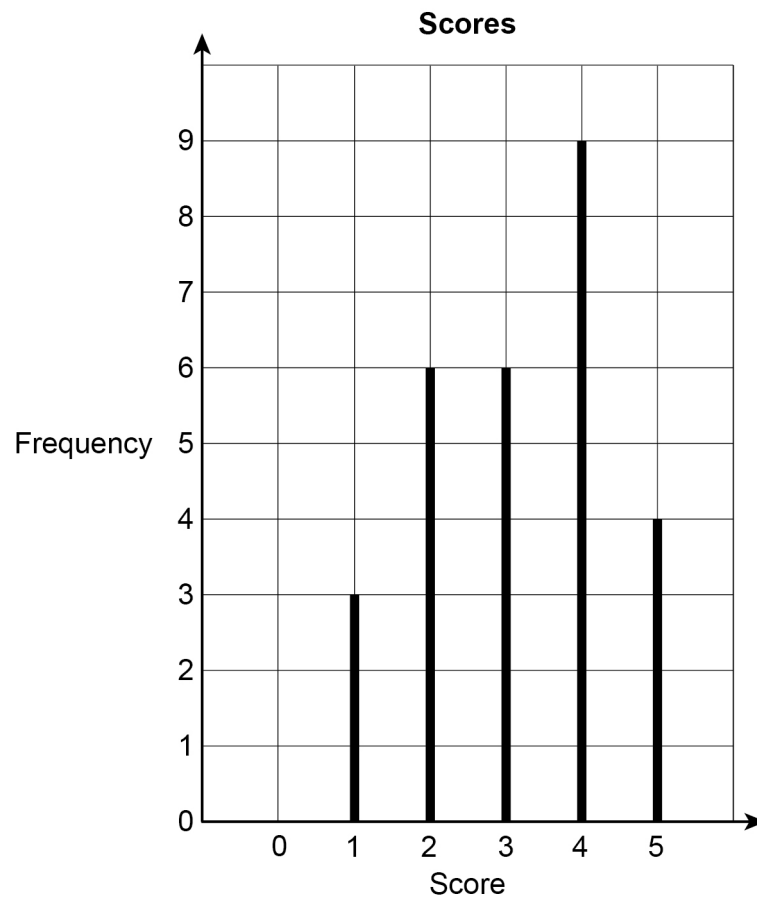
Give your answer as a mixed number.

[3 marks]

Answer _____



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



- 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 _____



- 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]

Answer £ _____



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 _____



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]

Answer _____

Turn over for the next question



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

Circle your answer.

4

5

8

12

[1 mark]



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

Circle your answer.

2

3

4

5

[1 mark]

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.



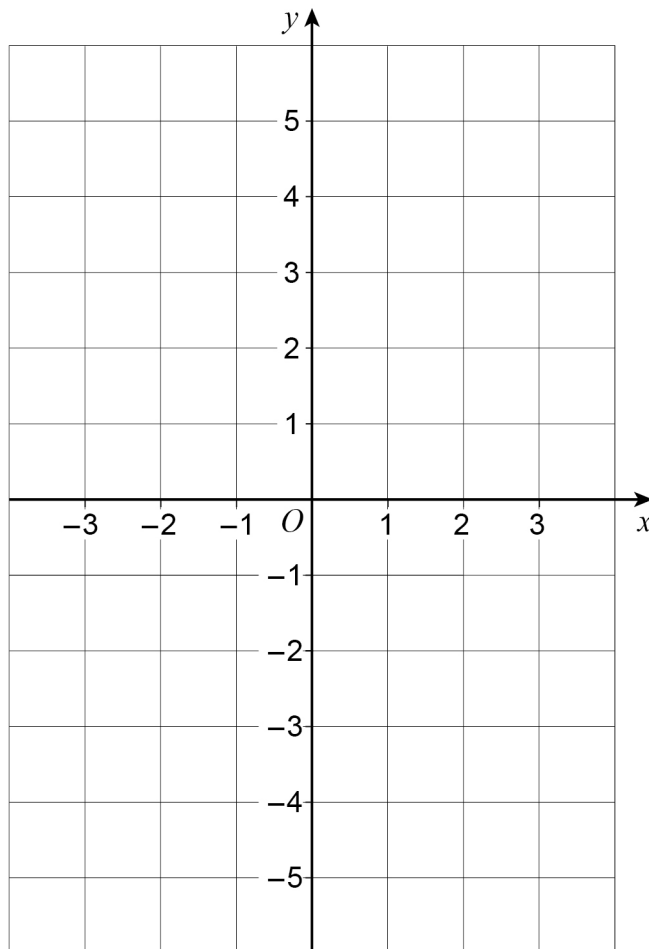
[2 marks]

Answer _____



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

[2 marks]



Turn over for the next question

Turn over ►



15

5% of a number is 31

1% of the same number is 6.2

Work out 13% of the number.

[3 marks]



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

Turn over for the next question

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]

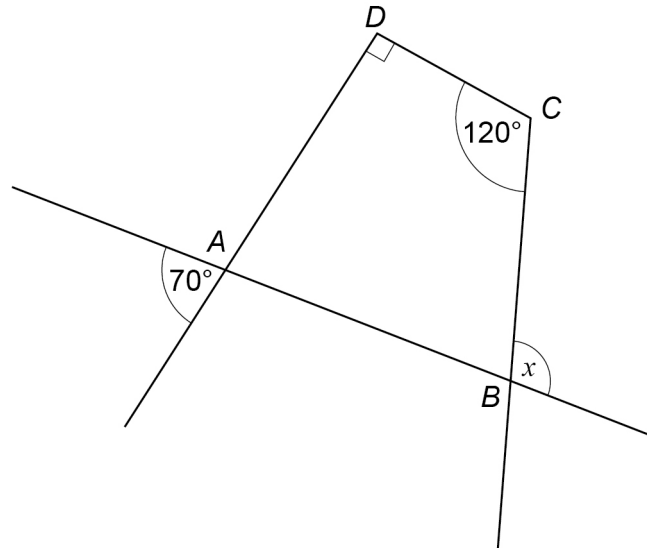
Answer _____



18

 $ABCD$ is a quadrilateral.

Sides are extended as shown.

Not drawn
accuratelyShow that $x = 100^\circ$ **[3 marks]**

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

19 Use 2 gallons = 9 litres to convert 17 gallons into litres.

[3 marks]



Answer _____ litres





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.

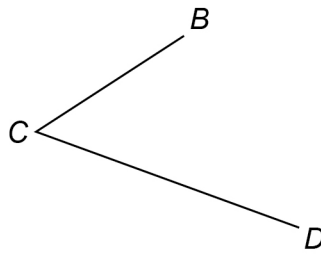
[1 mark]

$n =$ _____ $p =$ _____

Turn over for the next question



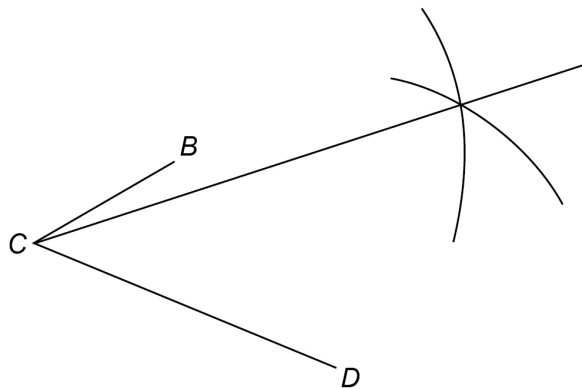
21 (a) Joe wants to bisect angle BCD .



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]



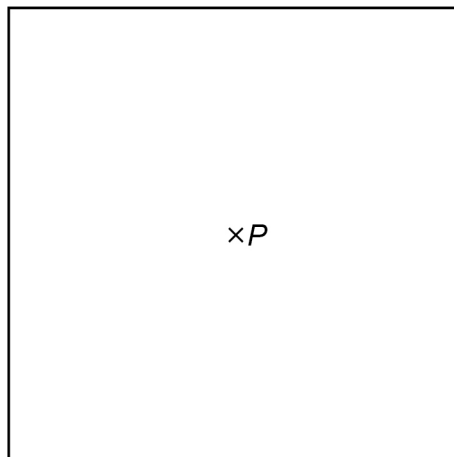
21 (b) Kay wants to show all the points 3 km from point P .

Scale: 1 cm represents 1 km

$\times P$

Here is her answer.

Scale: 1 cm represents 1 km



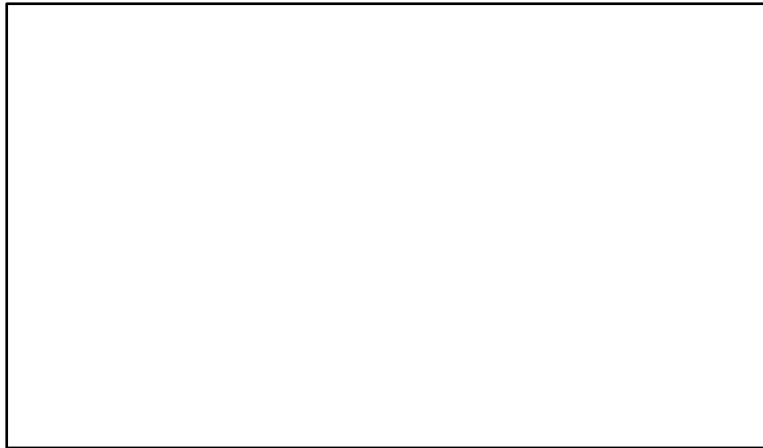
What is wrong with her answer?

[1 mark]

Question 21 continues on the next page



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]**

Answer _____

Turn over for the next question

Turn over ►



23

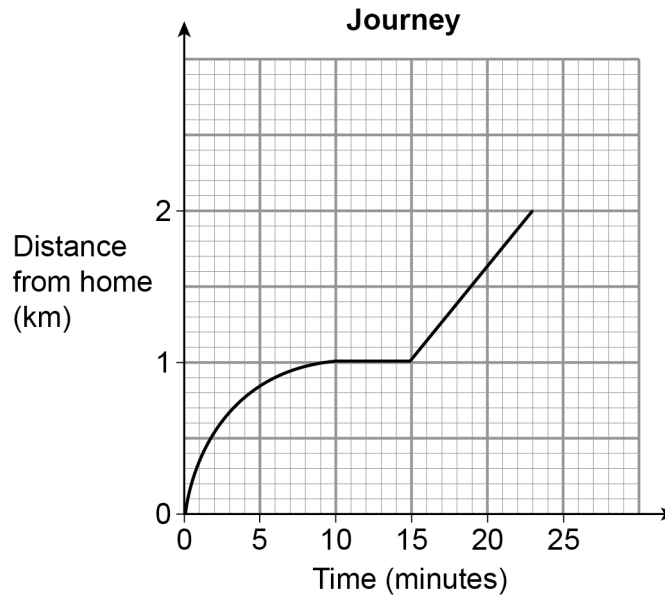
Anil's home is 1 km from a shop.

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.



Make **two** criticisms of his graph.

[2 marks]

Criticism 1 _____

Criticism 2 _____



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]

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

$$n-1$$

$$n$$

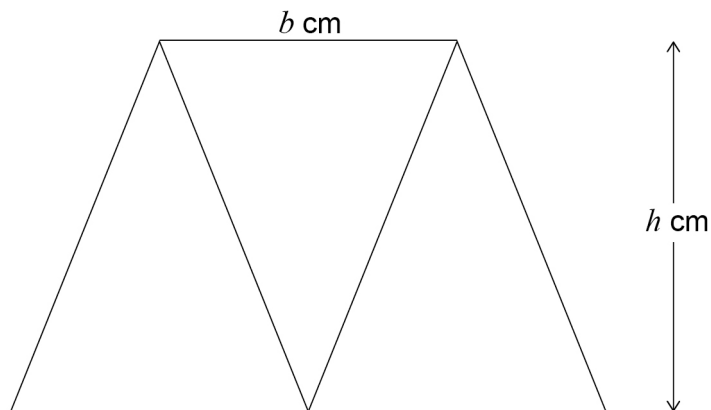
$$n+1$$



Turn over for the next question



- 26** Three identical isosceles triangles are joined to make this trapezium.
Each triangle has base b cm and perpendicular height h cm



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.

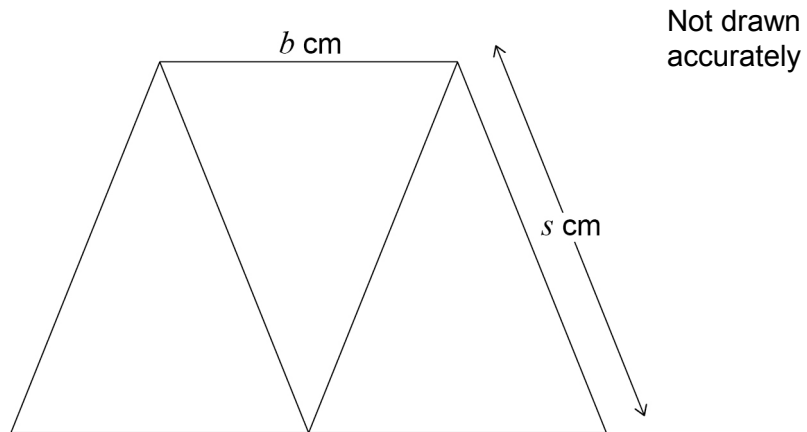


[2 marks]

Answer _____ cm^2



26 (b) This diagram shows the same trapezium.



$$b : s = 2 : 3$$

Work out an expression, in terms of b , for the perimeter of the trapezium.

[2 marks]

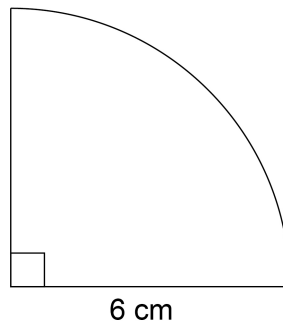
Answer _____ cm

Turn over for the next question



27

Here is a quarter circle of radius 6 cm

Not drawn
accurately

Work out the area of the quarter circle.

Give your answer in terms of π .

AV27A

[2 marks]

Answer _____ cm^2 

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 _____

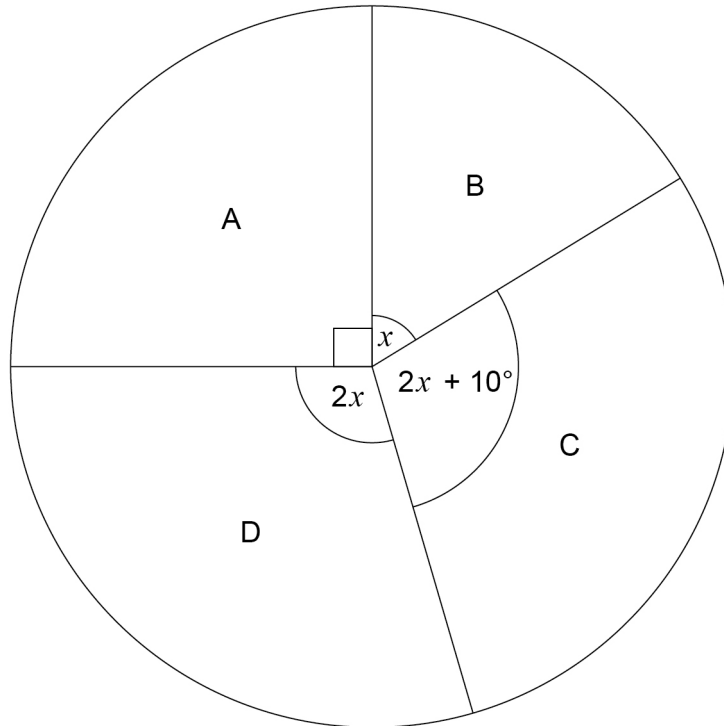
Turn over for the next question



30

The four candidates in an election were A, B, C and D.
The pie chart shows the proportion of votes for each candidate.

Proportion of votes

Not drawn
accurately

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

[4 marks]

Answer _____



31 (a) Factorise $x^2 - 100$

[1 mark]



Answer _____

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

[2 marks]

Answer _____

END OF QUESTIONS

7

