Write your name here

Surname		Other names

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need*.
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is 100
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

**PEARSON**

Formulae: Foundation Tier

You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

Area of trapezium $= \frac{1}{2}(a + b)h$
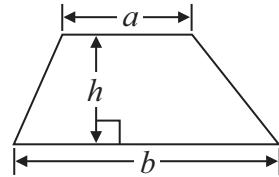
Volume of prism = area of cross section × length
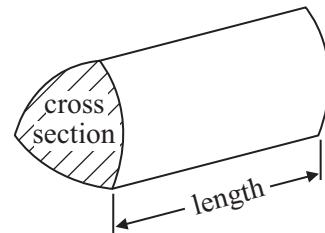
Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1 (a) Work out $2.4 + 37 + 6$

....
(1)

(b) What number do you need to add to 74.2 to make 100?

....
(1)

The arrow points to a number.
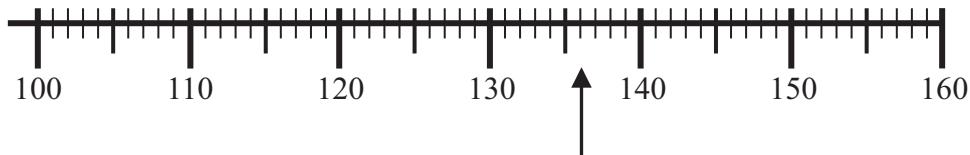
(c) What is the difference between this number and 150?

....
(2)

(Total for Question 1 is 4 marks)

2 Calculate

(i) 6.4^2

....

(ii) $2.5 \times (8 - 3.6)$

....

(iii) $\sqrt{10\,201}$

....

(iv) $\dfrac{8.4}{2.5}$

....

(Total for Question 2 is 4 marks)

3
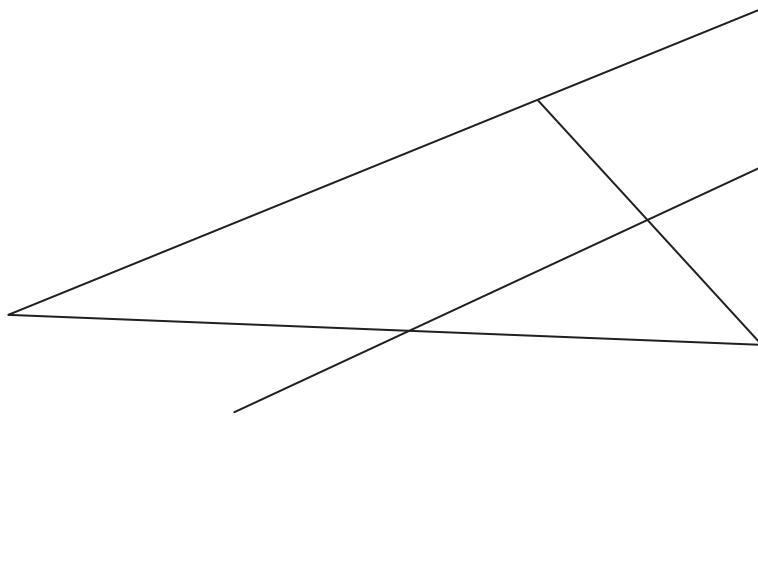
There is a pair of parallel lines in this diagram.

(a) Mark the pair of parallel lines with arrows (>>).

(1)

(b) On the diagram, mark with letter A, two angles of the same size.

(1)

(Total for Question 3 is 2 marks)

4 Write in the numbers missing from the empty boxes.

(i)

| 47 | $+$ | 42 | $=$ | .... |

(ii)

| 178 | $-$ | .... | $=$ | 67 |

(iii)

| 18 | $\times$ | .... | $+$ | 5 | $=$ | 59 |

(iv)

| 125 | $-$ | 57 | $=$ | .... | $+$ | 54 |

(Total for Question 4 is 4 marks)

5 Here is a parallelogram.
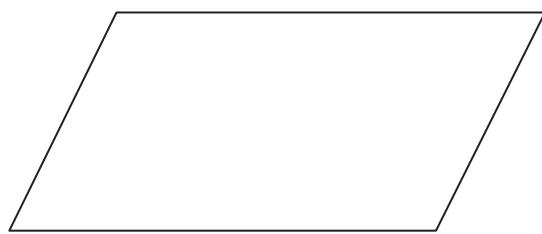
(a) Draw one straight line on the parallelogram to split the parallelogram into two congruent parts.

(1)

Here are two quadrilaterals.

Diagrams **NOT**
accurately drawn
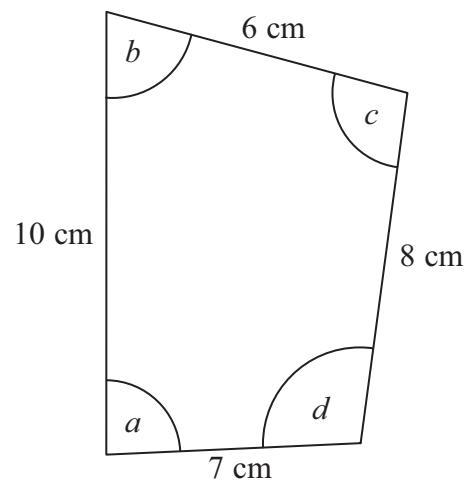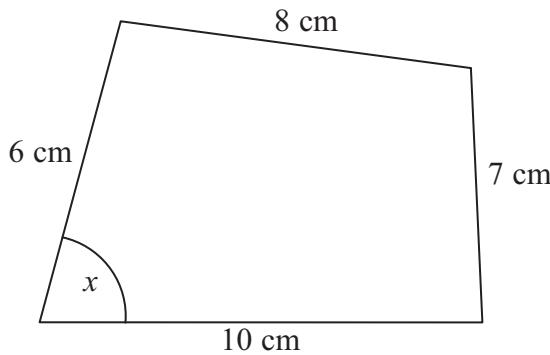

These quadrilaterals are congruent.

One of the angles, *a* or *b* or *c* or *d* is equal to the angle *x*.

(b) Which angle?

....

(1)

(Total for Question 5 is 2 marks)

6 Jim thinks of a number.
He multiplies the number by 4
He then subtracts 6

The answer is 30

What number did Jim think of?

....

(Total for Question 6 is 2 marks)

7 (a) Change 27% to a fraction.

....
(1)

(b) Change 42% to a fraction.
Give your fraction in its simplest form.

....
(1)

(c) Write 73% as a decimal.

....
(1)

(d) Write $\dfrac{7}{10}$ as a decimal.

....
(1)

(e) Write 0.453 as a fraction.

....
(1)

(f)
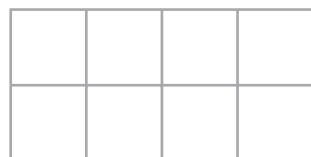
Shade $\frac{3}{4}$ of this shape.

(1)

(g) Write down the reciprocal of 5

....
(1)

(Total for Question 7 is 7 marks)

8
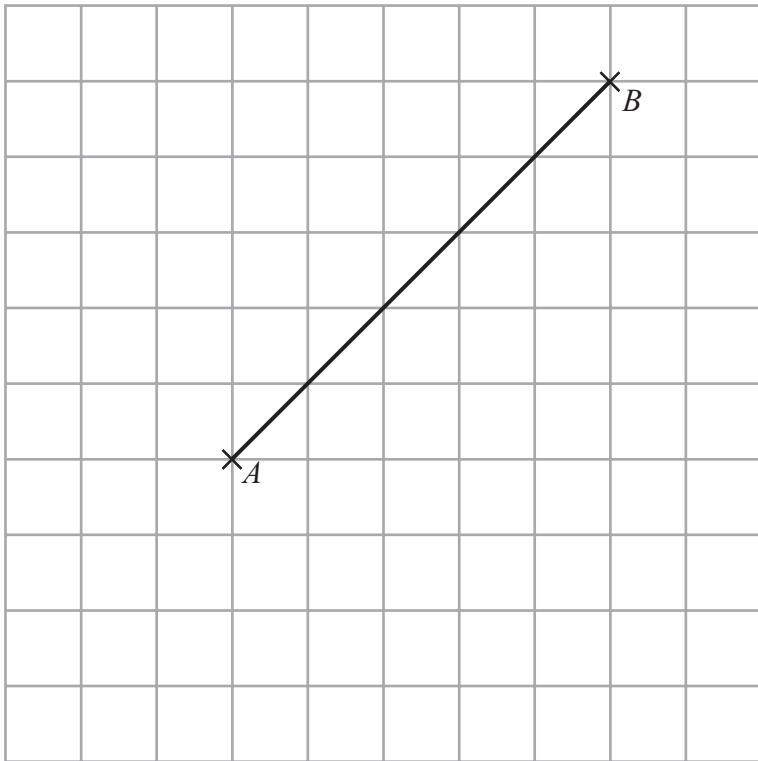
On the grid, draw a line that is both

parallel to the line *AB*
and the same length as the line *AB*.

(Total for Question 8 is 2 marks)

9 Here is a rule for working out the area of a rhombus.

> Multiply the lengths of the diagonals together
>
> and then divide by 2

A rhombus has diagonals of length 10 cm and 7 cm.

(a) Use the rule to work out the area of the rhombus.

.... cm²

(2)

A different rhombus has an area of 48 cm².
One of its diagonals has a length of 8 cm.

(b) Work out the length of the other diagonal.

.... cm

(3)

(Total for Question 9 is 5 marks)

10 Here are some fractions.

$$\frac{1}{10} \qquad \frac{1}{8} \qquad \frac{1}{5} \qquad \frac{1}{4} \qquad \frac{1}{3}$$

One of these fractions is equal to a recurring decimal.

(a) Which fraction?

....

(1)

(b) Write these numbers in order of size.
   Start with the smallest number.

$$\frac{3}{4} \qquad 70\% \qquad 0.73 \qquad 7\%$$

..

(2)

(c) Work out 17% of 300

....

(2)

(Total for Question 10 is 5 marks)

*11 Here is a rectangle.

Diagram **NOT** accurately drawn

←———————— 20 cm ————————→

red	green
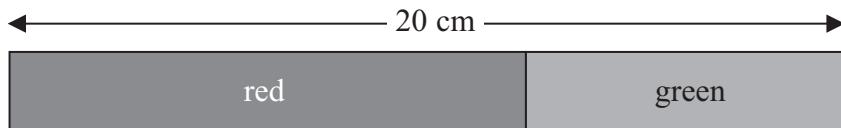
The rectangle has a length of 20 cm.

$\dfrac{3}{5}$ of the rectangle is red.

The rest of the rectangle is green.

Work out the length of the green part of the rectangle.

(Total for Question 11 is 3 marks)

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12
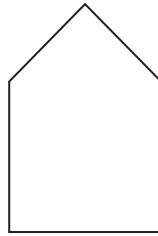
(a) Write down the mathematical name of this polygon.

....

(1)

(b) On the grid show how the polygon will tessellate.
You should draw at least 7 polygons.

(2)
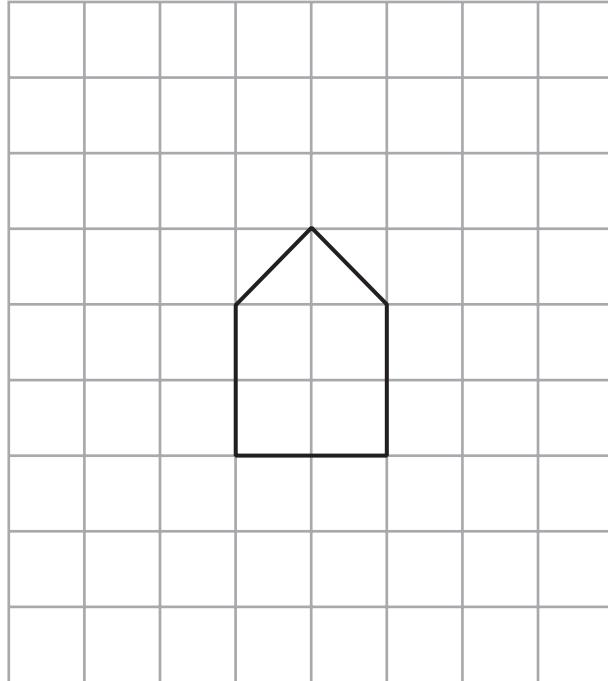
(Total for Question 12 is 3 marks)

13 This diagram shows a mathematical rule.

Input $\longrightarrow$ | $\times\ 5$ | $\longrightarrow$ | $+\ 2$ | $\longrightarrow$ Output
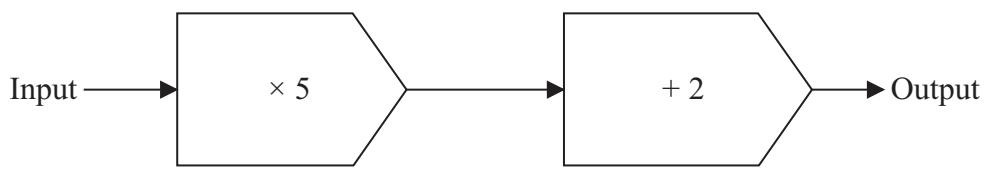
(a) Complete the table.

Input	Output
1	7
2	12
3	17
4	....
....	37

(2)

This diagram shows a different mathematical rule.

Input $\longrightarrow$ | $\times\ 4$ | $\longrightarrow$ | $\times$ .... | $\longrightarrow$ Output
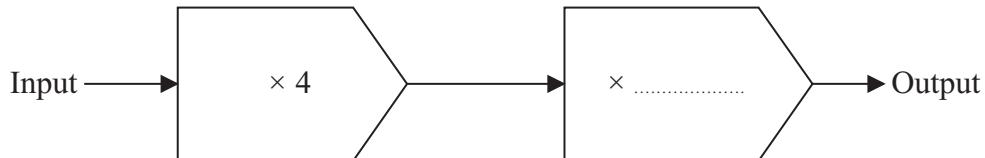
For this rule the output is always equal to the input.

(b) Complete the diagram.

(1)

(Total for Question 13 is 3 marks)

*14 Here is a solid cuboid.

Diagram **NOT** accurately drawn

15 cm

24 cm

30 cm
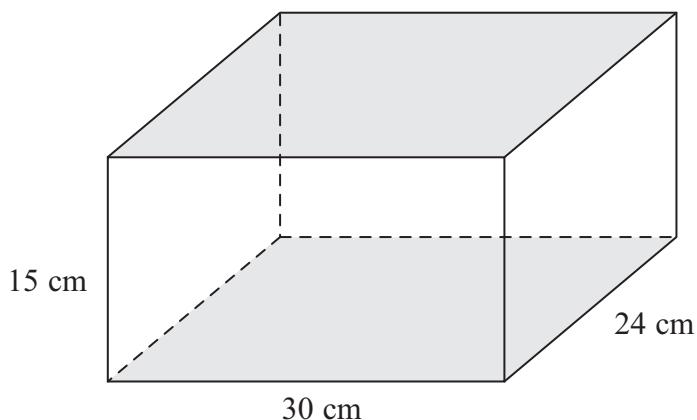
The top face and the bottom face of the cuboid are shaded.
The other faces of the cuboid are **not** shaded.

Anil says

'The total area shaded is greater than the total area **not** shaded.'

Is Anil right?

(Total for Question 14 is 4 marks)

15 Here are two boxes.

Box A   Box B
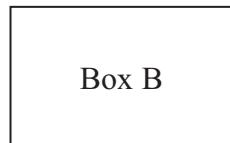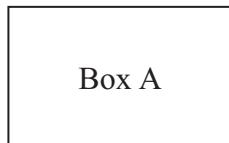
There are x marbles in box A.
There are 4 more marbles in box B than in box A.

The total number of marbles in the two boxes is T.

(a) Write a formula, in terms of x, for the total number of marbles, T, in the two boxes.

....

(3)

$x = 13$

(b) Work out the value of T.

....

(2)

(Total for Question 15 is 5 marks)

16 2 pens cost £1.98

Work out the total cost of 7 of these pens.

£ ....

(Total for Question 16 is 3 marks)

17 There are only red beads and blue beads in a box.

There are 16 red beads in the box.
The total number of beads in the box is 40

(a) Write down the ratio of the number of red beads to the number of blue beads.
Give your answer in its simplest form.

....

(3)

(b) Find the fraction of the total number of beads in the box that are red.

....

(1)

(Total for Question 17 is 4 marks)

*18 Here is a shape.
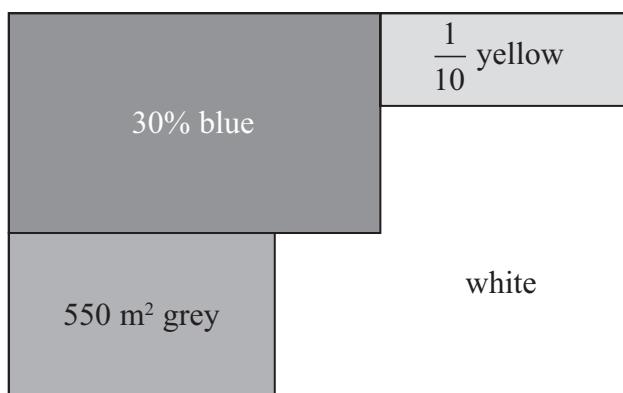
Diagram **NOT** accurately drawn

The total area of the shape is 1640 m².

30% of the shape is blue.

$\dfrac{1}{10}$ of the shape is yellow.

550 m² of the shape is grey.

The rest of the shape is white.

Is the white area more than 400 m²?

(Total for Question 18 is 5 marks)

19 $y = 3p + 4q$

$p = 5.2$

$q = 4.8$

(a) Work out the value of y.

....
(2)

$y = 3p + 4q$

$p = 7.2$

$y = 32$

(b) Work out the value of q.

....
(2)

(Total for Question 19 is 4 marks)

*20 Here is a quadrilateral.

Diagram **NOT** accurately drawn

120°

110°

$x°$

136°
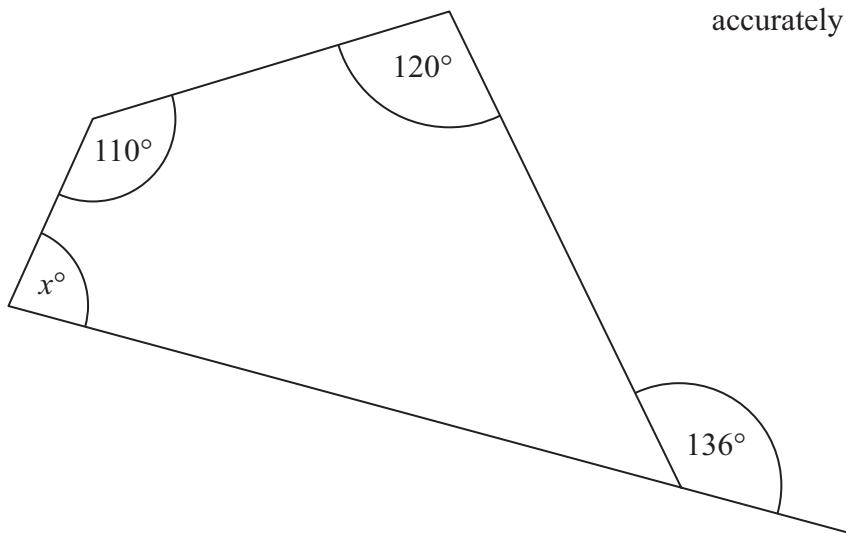
Work out the value of x.

Give reasons for your answer.

(Total for Question 20 is 5 marks)

21

$$\frac{1}{4} \qquad\qquad x \qquad\qquad\qquad \frac{1}{2}$$
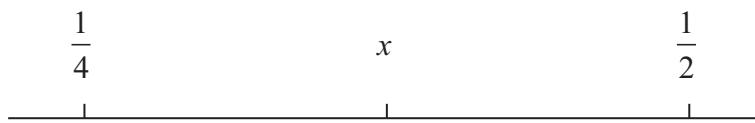
x is halfway between $\frac{1}{4}$ and $\frac{1}{2}$

Work out the value of x.

....

(Total for Question 21 is 3 marks)

22 A circle has a diameter of 10 cm.

Work out the circumference of the circle.
Give your answer correct to 3 significant figures.

.... cm

(Total for Question 22 is 2 marks)

23 Alf and Betty share some money in the ratio $3:5$

Work out the percentage of the money that Alf gets.

.... %

(Total for Question 23 is 2 marks)

24 x is an integer.

$-3 \leqslant x < 2$

Write down all the possible values of x.

....

(Total for Question 24 is 2 marks)

25

Diagram **NOT** accurately drawn

53°

b°

72°

a°
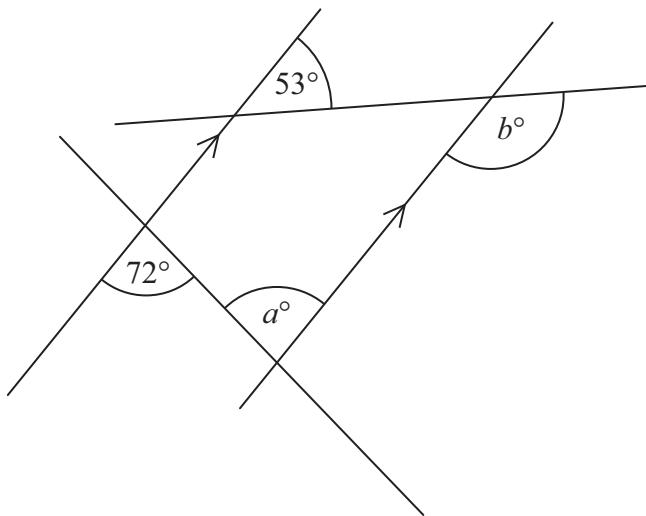
(a) (i) Find the value of a.

....

(ii) Give a reason for your answer.

....

(2)

(b) Work out the value of b.

....

(2)

(Total for Question 25 is 4 marks)

26 (a) Complete the table of values for $y = x^2 - 3x + 1$

x	-1	0	1	2	3	4
y		1			1	5

(2)

(b) Draw the graph of $y = x^2 - 3x + 1$ for values of x from -1 to 4

(2)
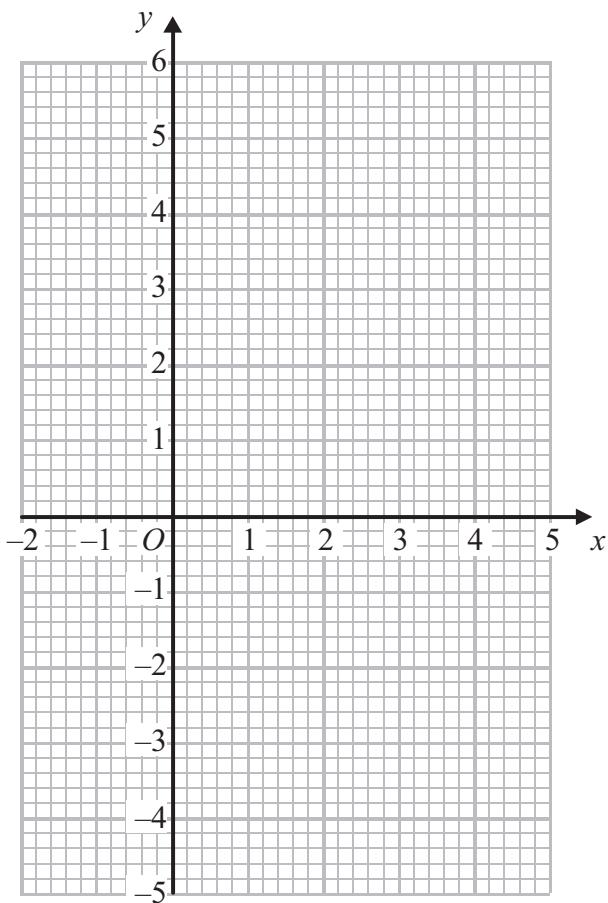
**(Total for Question 26 is 4 marks)**

27
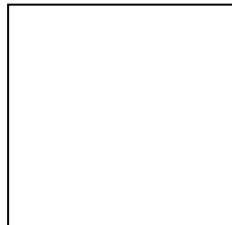
Diagram **NOT** accurately drawn

8.4 cm

A square has sides of length 8.4 cm.

Work out the length of a diagonal of the square.
Give your answer correct to 3 significant figures.

.... cm

(Total for Question 27 is 3 marks)

28 Here is a regular hexagon.
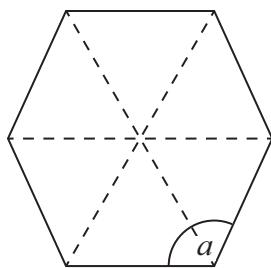
Diagram **NOT**
accurately drawn

(a) Write down the size of the interior angle, marked *a*.

.. °
(1)

(b)
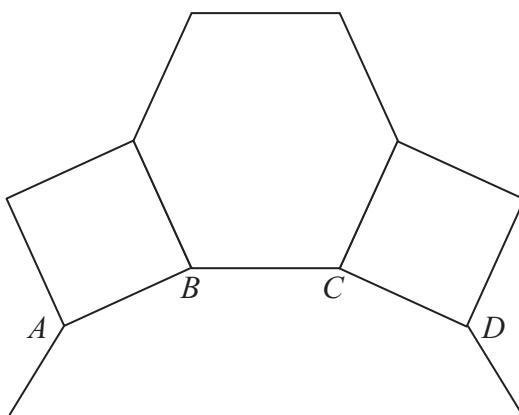
Diagram **NOT**
accurately drawn

The diagram shows two squares and a regular hexagon.

AB, *BC* and *CD* are 3 sides of a regular polygon with *n* sides.

Work out the value of *n*.

....
(3)

(Total for Question 28 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS

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