OCR RECOGNISING ACHIEVEMENT

M4

GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS C (GRADUATED ASSESSMENT)

MODULE M4 – SECTION A

B274A

Candidate Forename		Candidate Surname	

Centre Number					Candidate Number				

INSTRUCTIONS TO CANDIDATES

*   Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
*   Use black ink. Pencil may be used for graphs and diagrams only.
*   Read each question carefully and make sure that you know what you have to do before starting your answer.
*   Show your working. Marks may be given for a correct method even if the answer is incorrect.
*   Answer **all** the questions.
*   Do **not** write in the bar codes.
*   Write your answer to each question in the space provided, however additional paper may be used if necessary.

INFORMATION FOR CANDIDATES

*   The number of marks is given in brackets **[ ]** at the end of each question or part question.
*   The total number of marks for this Section is **25**.
*   This document consists of **12** pages. Any blank pages are indicated.

WARNING

No calculator can be used for Section A of this paper
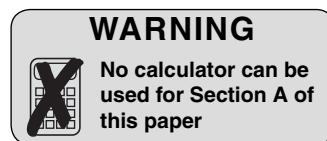
FOR EXAMINER'S USE	
SECTION A	
SECTION B	
TOTAL	

OCR is an exempt Charity

Turn over

Formulae Sheet

Area of trapezium $= \frac{1}{2}(a + b)h$
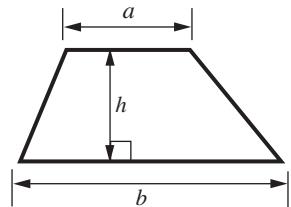
Volume of prism = (area of cross-section) × length
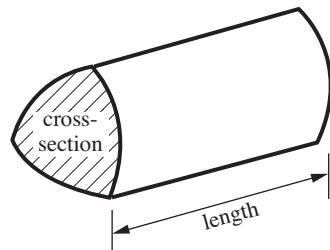
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1 (a)
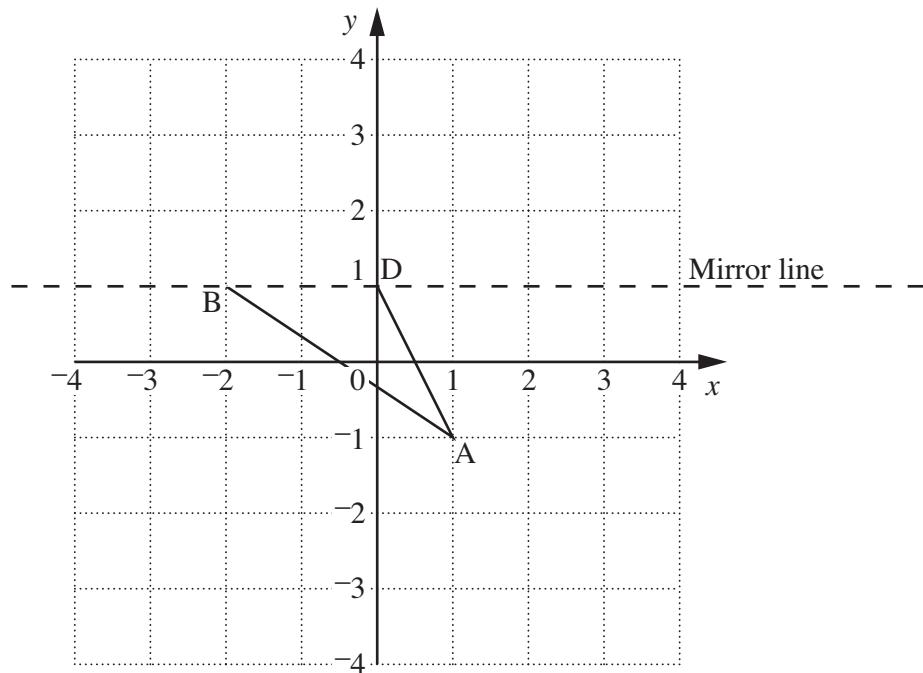
The diagram shows part of an arrowhead, ABCD, on a grid.

(i) The mirror line of the complete arrowhead is shown by the dashed line.

Mark and label the vertex C. **[1]**

(ii) Write down the coordinates of B.

(a)(ii) (............. , ...) **[1]**

(iii) Write down the coordinates of D.

(iii) (............. , ...) **[1]**

(b) Under each diagram write its order of rotation symmetry.

....

....

[2]

(c)

2a   2a

a   a
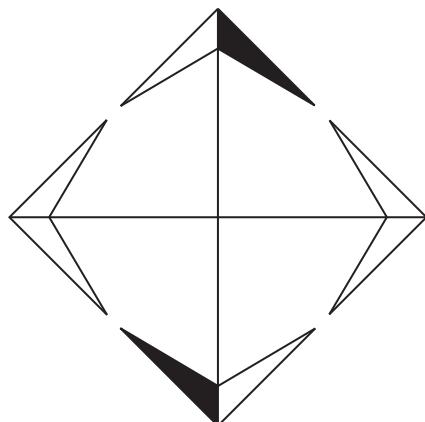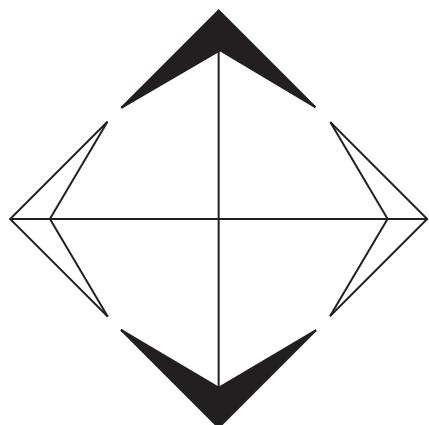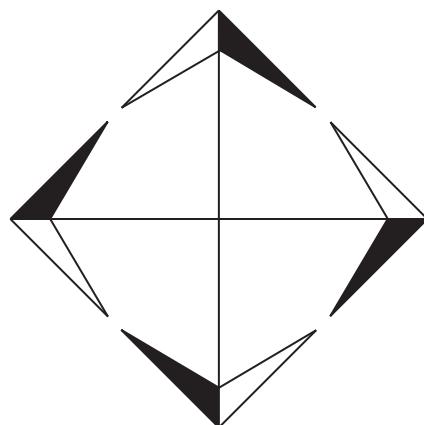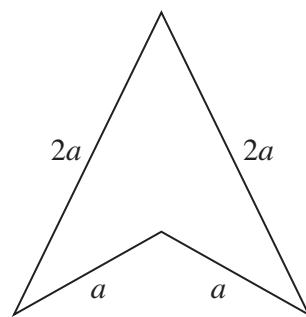
Write down a formula for the perimeter, P, of this arrowhead.

(c) .... [2]

(d)

Not to scale
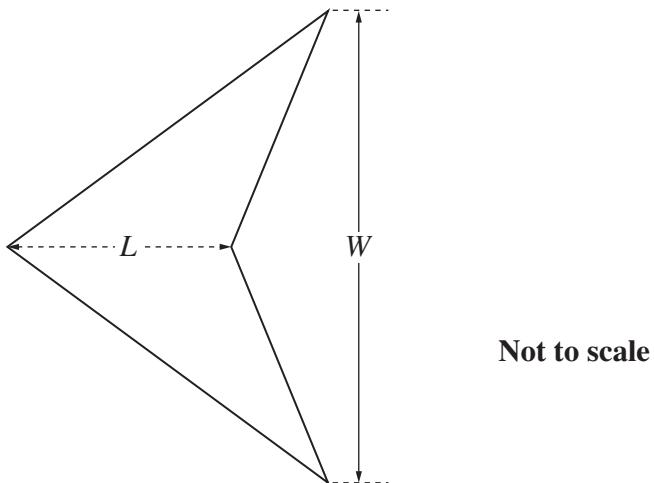
The formula for the area, A, of an arrowhead is

$$A = LW \div 2.$$

Calculate the area of an arrowhead where $L = 5\,\text{cm}$ and $W = 10\,\text{cm}$.
Give the units of your answer.

(d) .... **[2]**

(e)

Not to scale
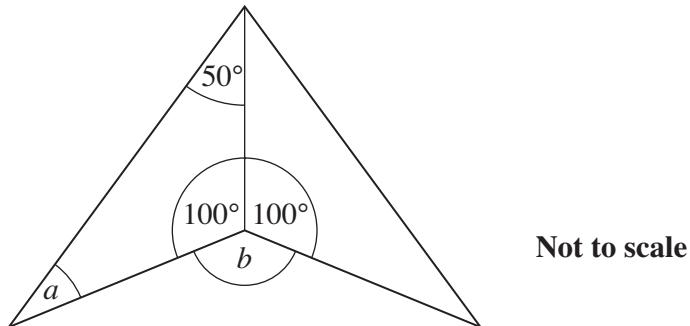
Complete these statements, giving your reasons.

$a = \quad$ **30°** $\quad$ because ....

.... **[1]**

$b = $ ....° because ....

.... **[2]**

2   These are the census figures for the population of the UK, in millions, from 1971 to 2001.

Year	1971	1981	1991	2001
Population (millions)	55·9	56·4	57·4	59·1

(a) Here is one attempt to show this information.
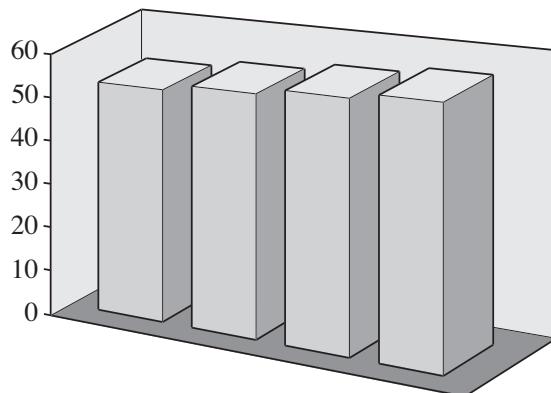
Give one reason why this diagram is misleading.

.... **[1]**

(b) Here is another attempt to show this information.
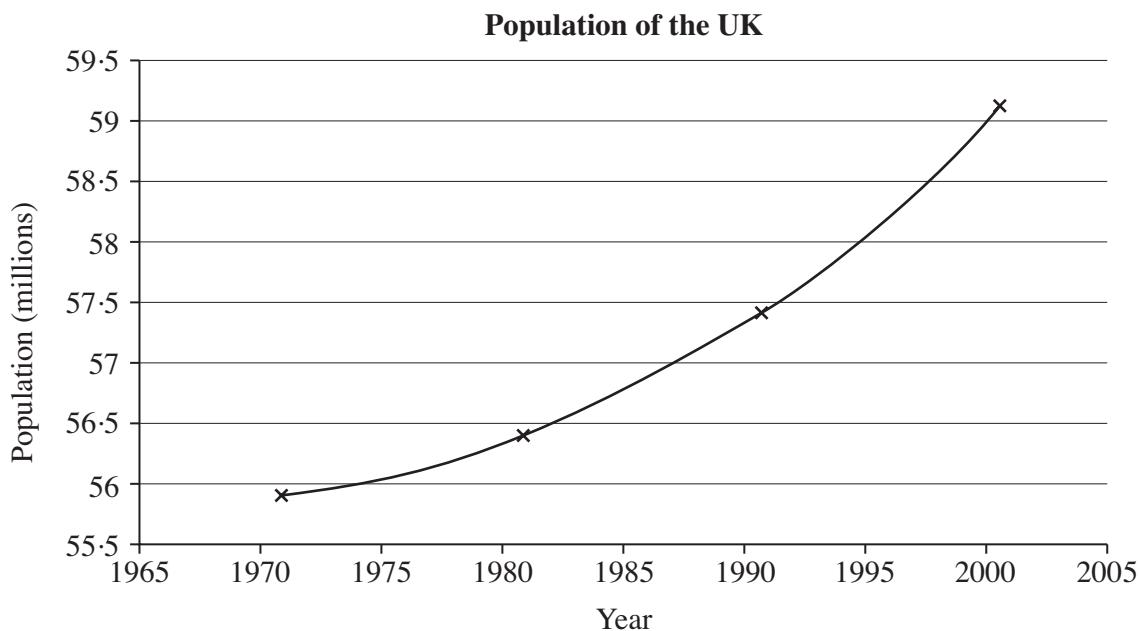
Give one reason why this diagram is misleading.

.... **[1]**

(c) The population of England in 2003 was 50 million.
By 2023 it is expected to increase by 10%.

What is 10% of 50 million?

(c) .... million **[1]**

3 Match each description with a box of numbers.
One has been done for you.

Multiples of 3	**2 4 6**
Factors of 4	**2 3 5**
Prime numbers	**6 9 12**
Square numbers	**1 2 4**
Even numbers	**5 10 15**
Divisible by 5	**1 4 9**

(Even numbers is connected to the box **2   4   6**.)
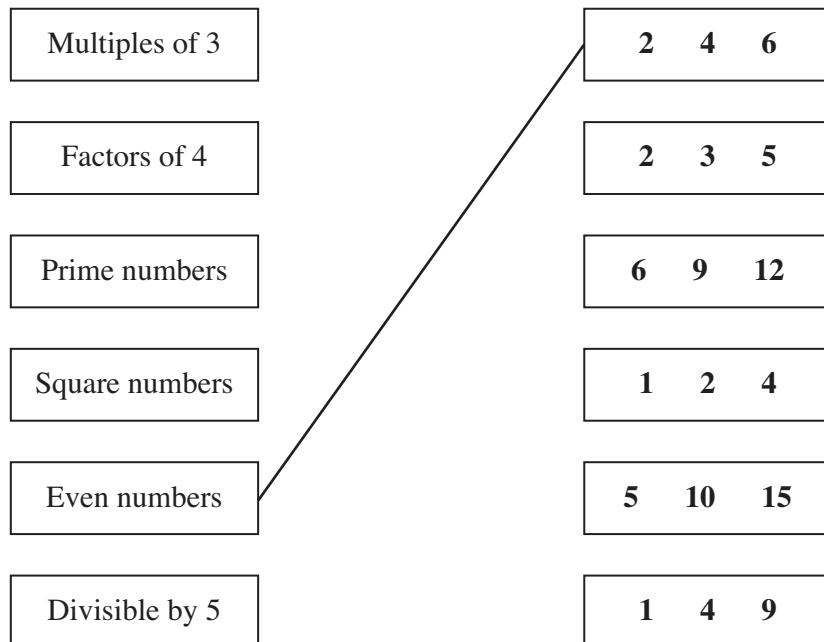
[3]

4 Calculate.

(a) $1·2 + 0·02$

(a) .... [1]

(b) $1·5 \times 0·3$

(b) .... [1]

Turn over

5 Here are some patterns made from dots.

Pattern number 1   2   3   4   5
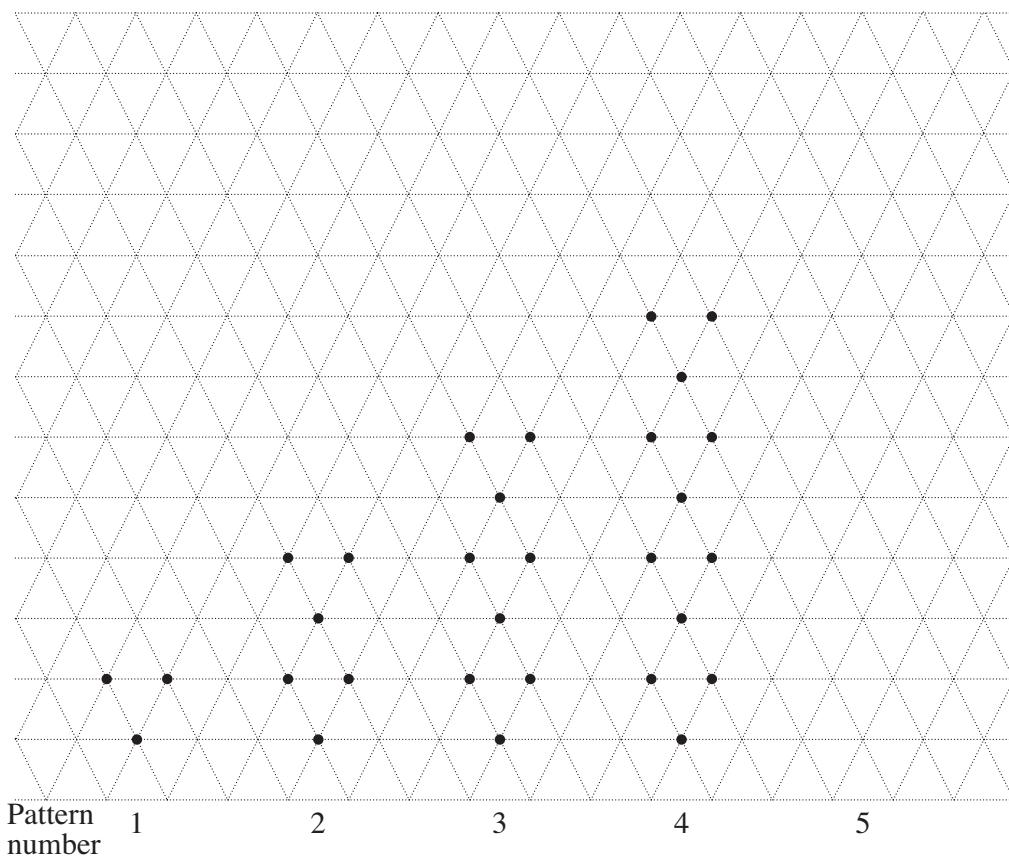
(a) Draw Pattern 5 on the grid. **[1]**

(b) (i) How many dots are there in Pattern 100?
You do not need to draw this pattern.

(b)(i) .... **[1]**

(ii) Explain how you worked out your answer.

....

.... **[1]**

6 Here is a recipe for making 6 flapjacks.

Flapjacks

Makes 6
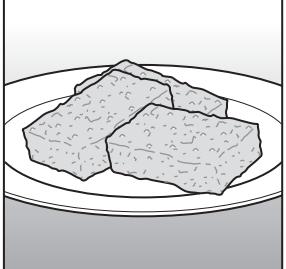
Ingredients

70 g butter
65 g sugar
35 ml syrup
145 g rolled oats
25 g raisins

(a) How much butter is needed to make 9 flapjacks?

(a) .... g **[1]**

(b) Anton has 100 g of raisins.

How many flapjacks would this be enough for?

(b) .... **[1]**

10

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11

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