THIS IS A LEGACY SPECIFICATION

OCR
RECOGNISING ACHIEVEMENT

M4

GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT) B274A
MODULE M4 – SECTION A

OCE/T9137

Candidates answer on the question paper.

OCR supplied materials:
None

Other materials required:
- Geometrical instruments
- Tracing paper (optional)

Thursday 20 January 2011
Morning

Duration: 30 minutes

B274A

Candidate forename		Candidate surname	

Centre number						Candidate number				

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure 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.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Answer **all** the questions.
- Do **not** write in the bar codes.

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.

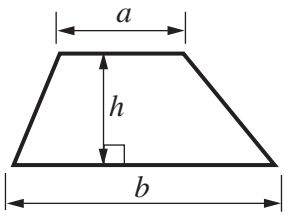
WARNING

No calculator can be used for Section A of this paper

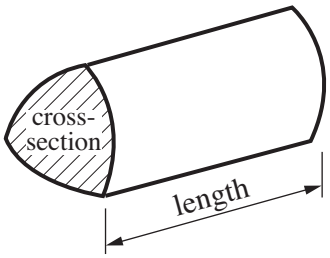
OCR is an exempt Charity

Formulae Sheet

Area of trapezium = $\frac{1}{2}(a + b)h$

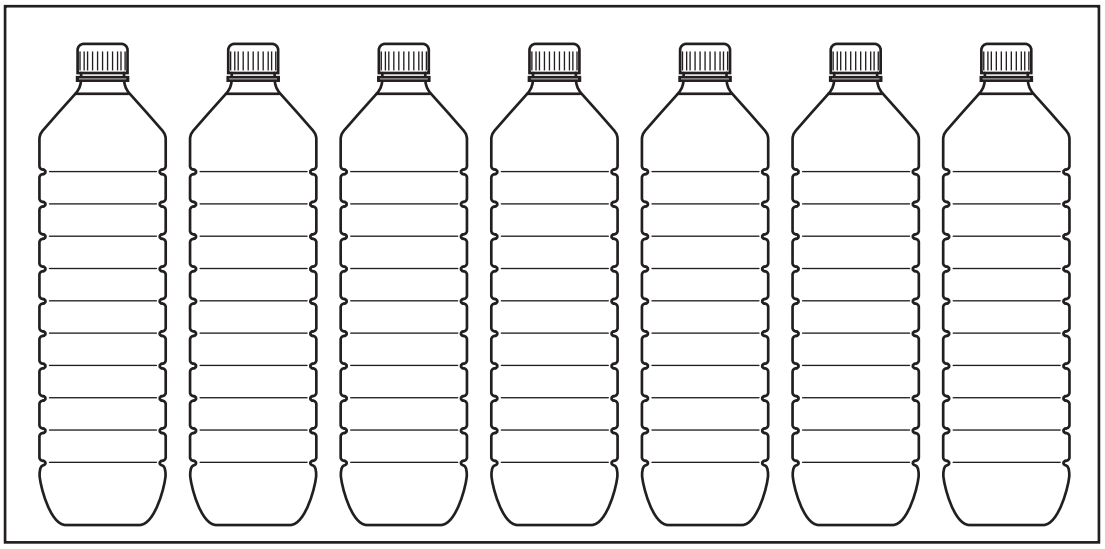


Volume of prism = (area of cross-section) × length



PLEASE DO NOT WRITE ON THIS PAGE

1 Amy has these bottles of water in her fridge.



Three of the bottles have sparkling water in them.
The rest have still water in them.
Amy picks one of the bottles without looking.

Find the probability that it contains

(a) sparkling water,

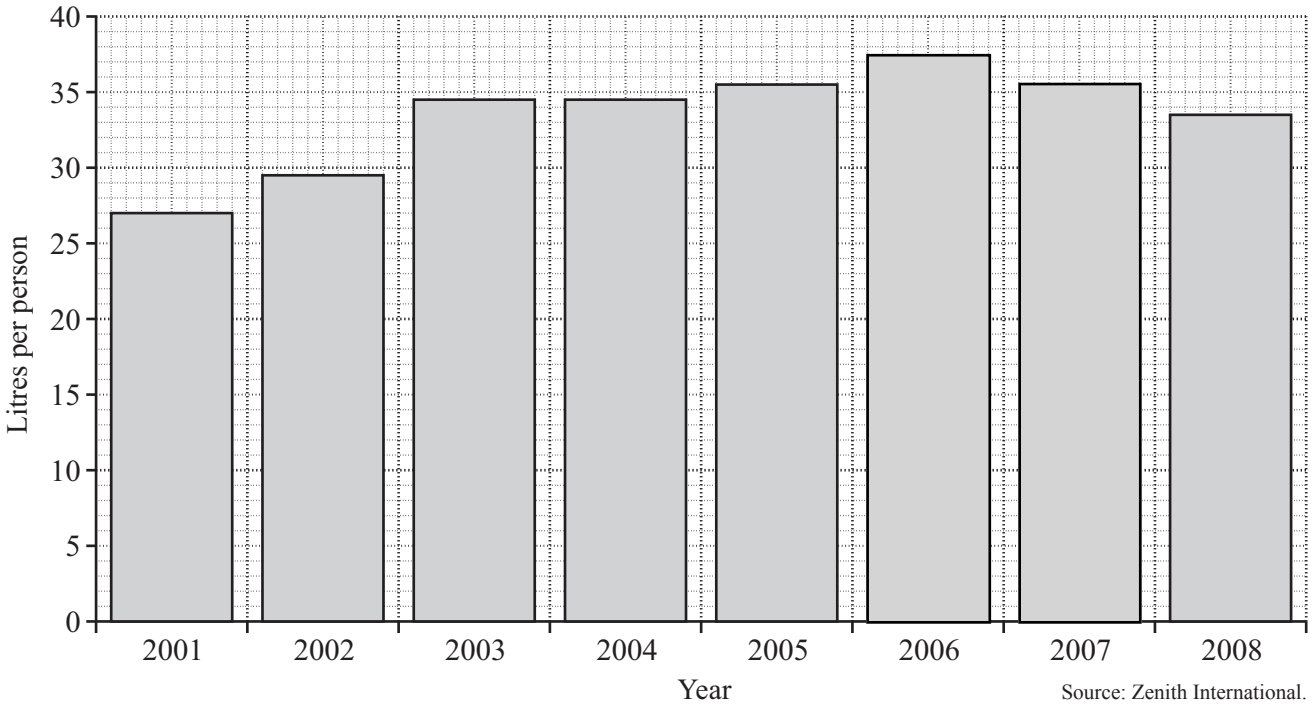
(a) ..... **[1]**

(b) still water.

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

2 (a)

Amount of bottled water drunk per person in the UK from 2001 to 2008



(i) How many litres of bottled water per person were drunk in 2004?

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

(ii) Describe how the amount of bottled water drunk changed during the years from 2001 to 2008.

.....

.....

..... **[2]**

(b) The average American drinks 21 gallons of bottled water in a year.

About how many litres is this?
Circle the correct number in this list.

5 10 95 200 **[1]**

(c) In a survey, 70% of those questioned said mineral water in restaurants was too expensive.

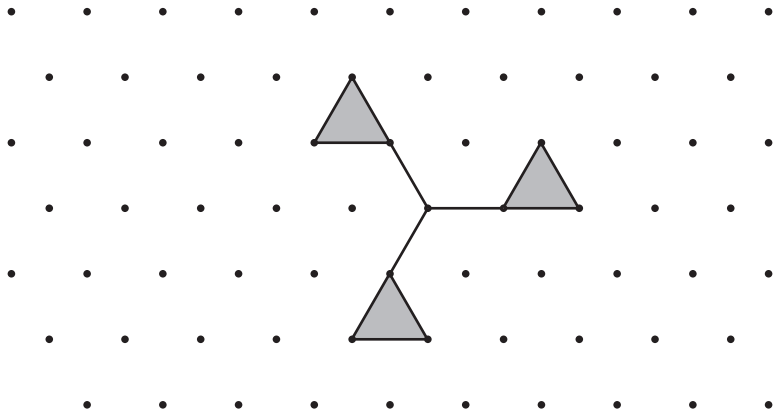
What is 70% as a fraction?

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

3 **(a)** These shapes are drawn on triangular dotty paper.

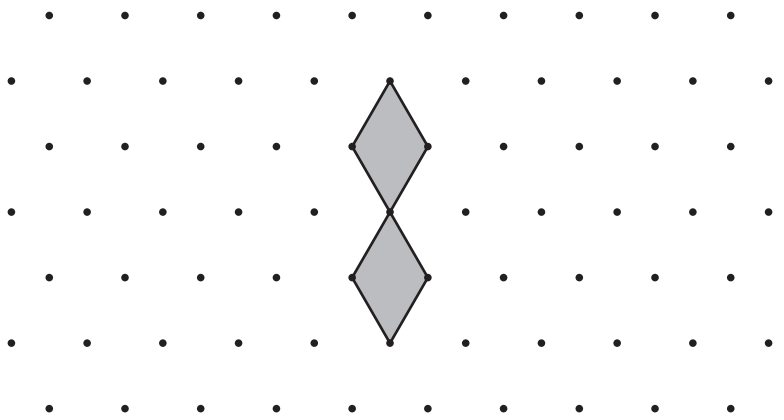
Write down the order of rotation symmetry of each shape.

(i)



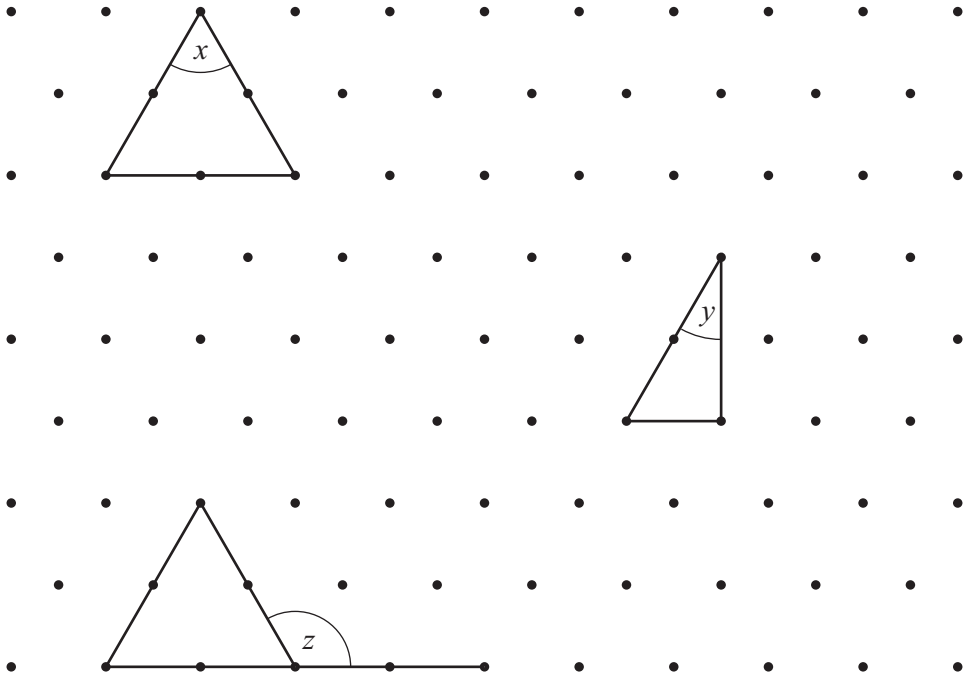
(a)(i) ..... **[1]**

(ii)



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

(b) Write down the sizes of angles x, y and z.

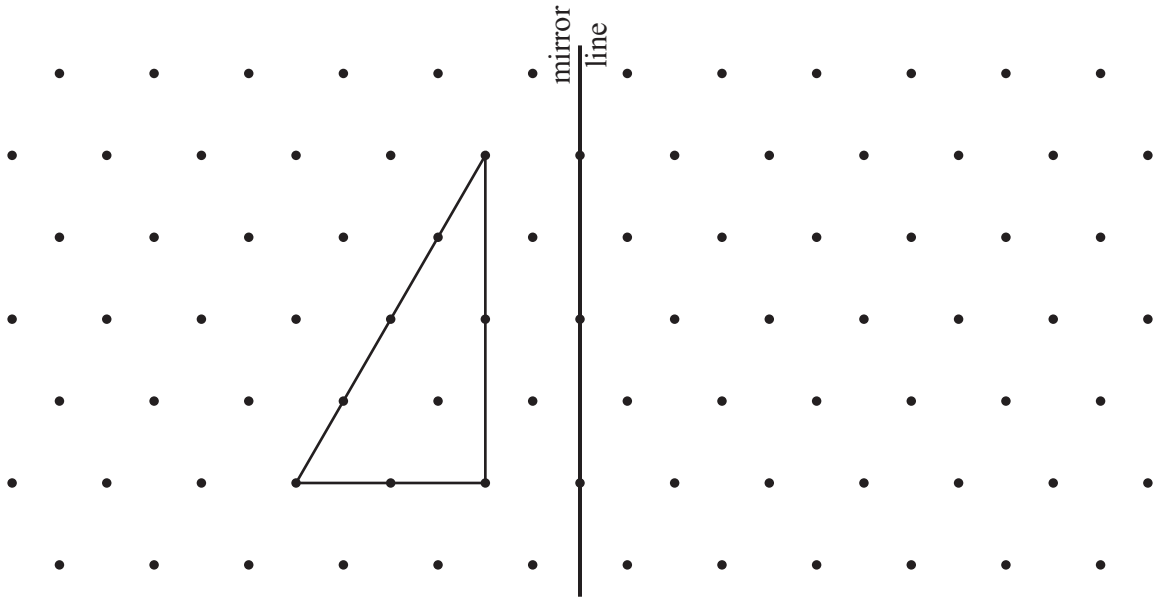


x = ... °

y = ... °

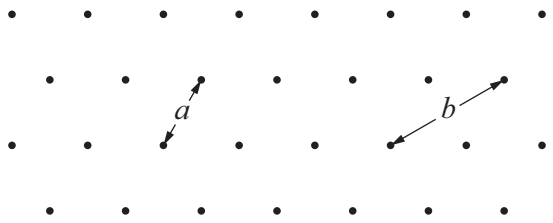
z = ... ° **[3]**

(c) Draw the reflection of this triangle in the mirror line.

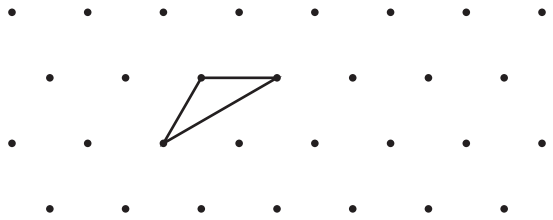


[2]

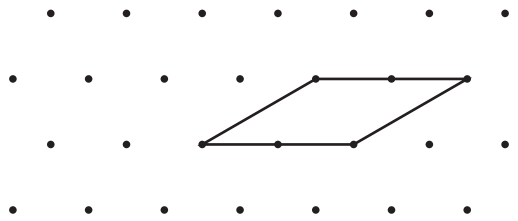
(d) Here is part of a piece of triangular dotty paper.
The distances between the dots are a and b as shown.



The formula for the perimeter, P, of this triangle is $P = 2a + b$.

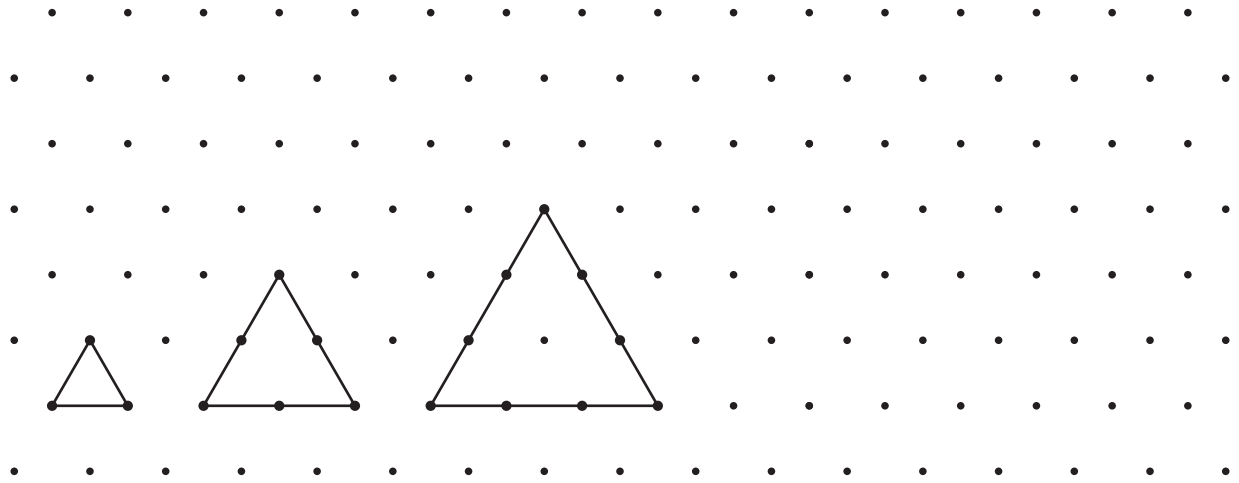


Write down the formula for the perimeter, P, of this shape.



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

(e) Here is a pattern of triangles.



Triangle 1 Triangle 2 Triangle 3 Triangle 4

(i) Draw Triangle 4. **[1]**

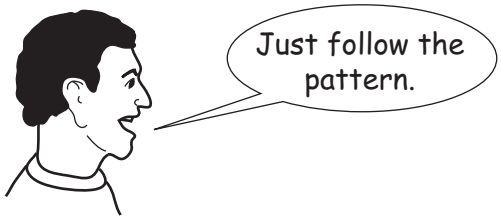
(ii) The total number of dots around each triangle also makes a pattern.

Complete this table.

Triangle number	1	2	3	4
Total number of dots around the triangle	3	6		

[1]

(iii) What is the total number of dots around Triangle 100?
Give a better reason than Zak's.



..... dots because .....

.....

..... **[2]**

TURN OVER FOR QUESTION 4

4

In 1971 UK money changed to decimal money.
In the old system there were 12 old pennies to one shilling.

(a) It is now the year 2011.

How many years ago did UK money change to decimal money?

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

(b) Jonti has 132 old pennies.

How many shillings is this?

(b) ..... **[2]**

(c) 1p was the same as 2·4 old pennies.

How many old pennies was 3p?

(c) ..... **[2]**

BLANK PAGE

PLEASE DO NOT WRITE ON THIS PAGE

PLEASE DO NOT WRITE ON THIS PAGE