

FOR OFFICIAL USE

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	KU	RE
Total marks		

2500/403

NATIONAL
QUALIFICATIONS
2009

WEDNESDAY, 6 MAY
10.40 AM – 11.15 AM

MATHEMATICS
STANDARD GRADE
General Level
Paper 1
Non-calculator

Fill in these boxes and read what is printed below.

Full name of centre

Town

Forename(s)

Surname

Date of birth

Day Month Year

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Scottish candidate number

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Number of seat

- You may not use a calculator.**
- Answer as many questions as you can.
- Write your working and answers in the spaces provided. Additional space is provided at the end of this question-answer book for use if required. If you use this space, write clearly the number of the question involved.
- Full credit will be given only where the solution contains appropriate working.
- Before leaving the examination room you must give this book to the invigilator. If you do not you may lose all the marks for this paper.



FORMULAE LIST

Circumference of a circle: $C = \pi d$

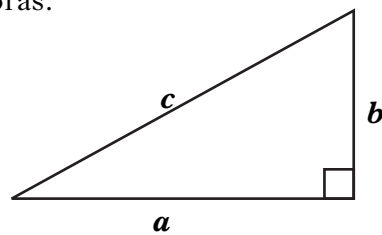
Area of a circle: $A = \pi r^2$

Curved surface area of a cylinder: $A = 2\pi r h$

Volume of a cylinder: $V = \pi r^2 h$

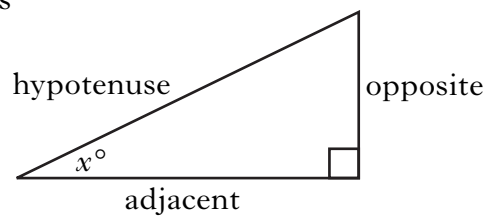
Volume of a triangular prism: $V = Ah$

Theorem of Pythagoras:



$$a^2 + b^2 = c^2$$

Trigonometric ratios
in a right angled
triangle:

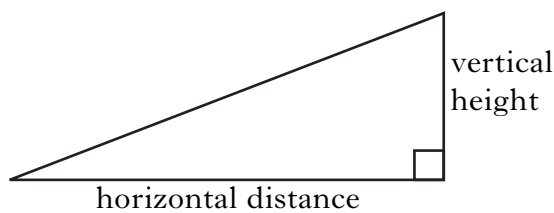


$$\tan x^\circ = \frac{\text{opposite}}{\text{adjacent}}$$

$$\sin x^\circ = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos x^\circ = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Gradient:



$$\text{Gradient} = \frac{\text{vertical height}}{\text{horizontal distance}}$$

1. Carry out the following calculations.

(a) $17.3 - 14.86$

(b) 23×6000

(c) $256.9 \div 7$

(d) 80% of 54

Marks

KU	RE

1

1

1

2

[Turn over

2. An old unit of measurement called a fluid ounce is equal to 0.0296 litres.

Write 0.0296 in scientific notation.



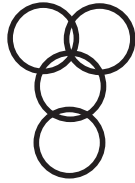
Marks

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2		

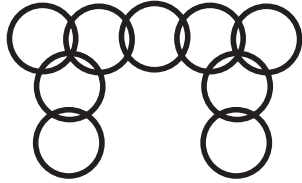
Marks

3. Samira is designing a chain belt.

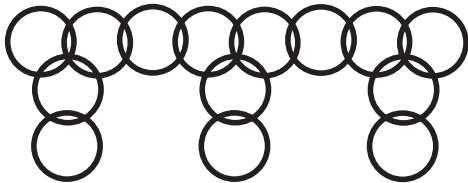
Each section of the belt is made from metal rings as shown below.



1 section, 4 rings



2 sections, 9 rings



3 sections

(a) Complete the table below.

Number of sections (s)	1	2	3	4	5		11
Number of metal rings (r)	4	9					

2

(b) Write down a formula for calculating the number of rings (r), when you know the number of sections (s).

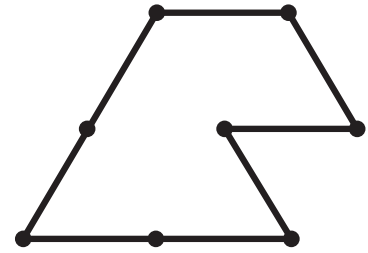
2

(c) Samira uses 79 rings to make her belt.

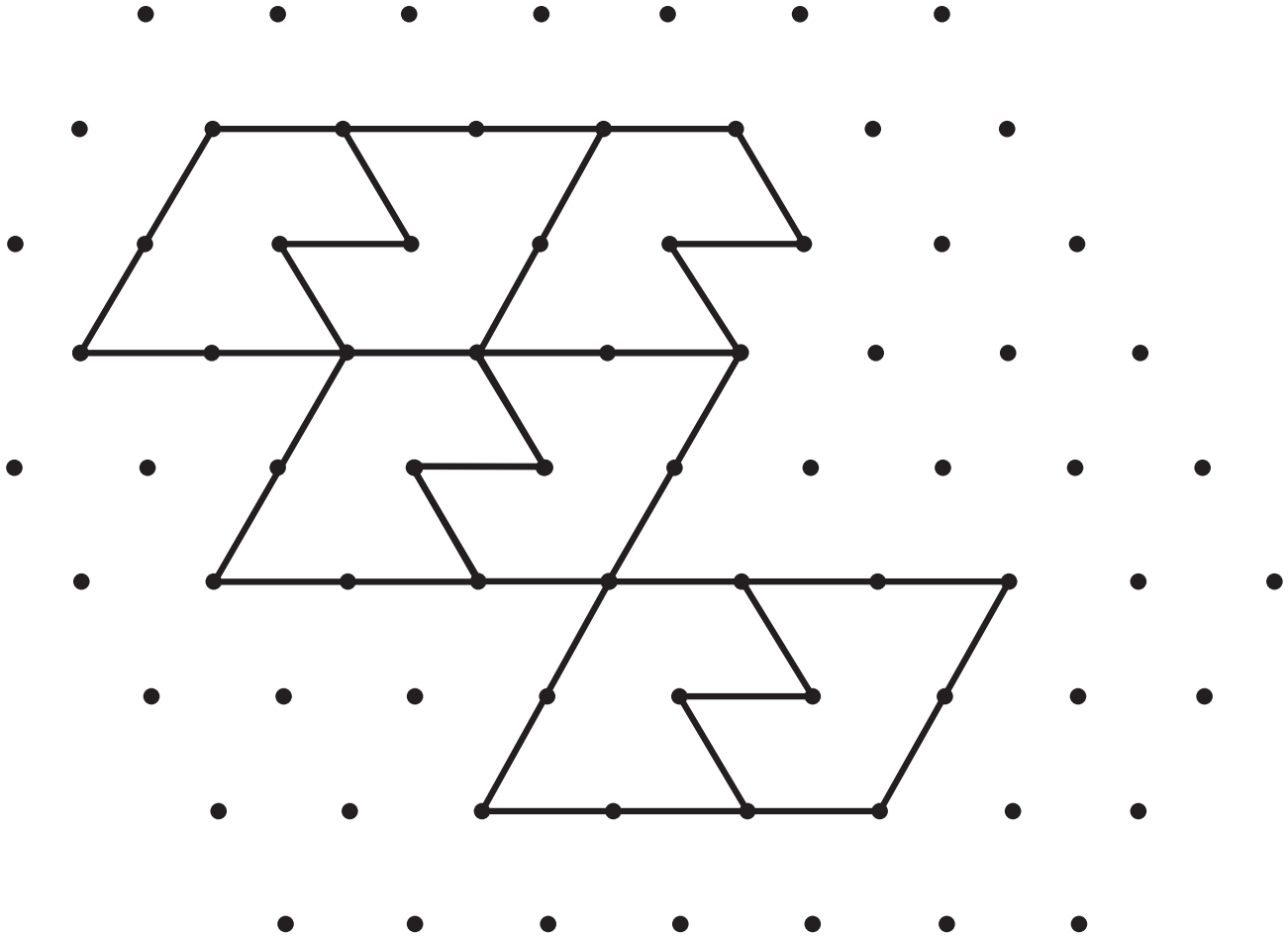
How many sections does her belt have?

2

4. A floor is to be tiled using tiles shaped like this.



Here is part of the tiling.



Draw **four** more tiles to continue the tiling.

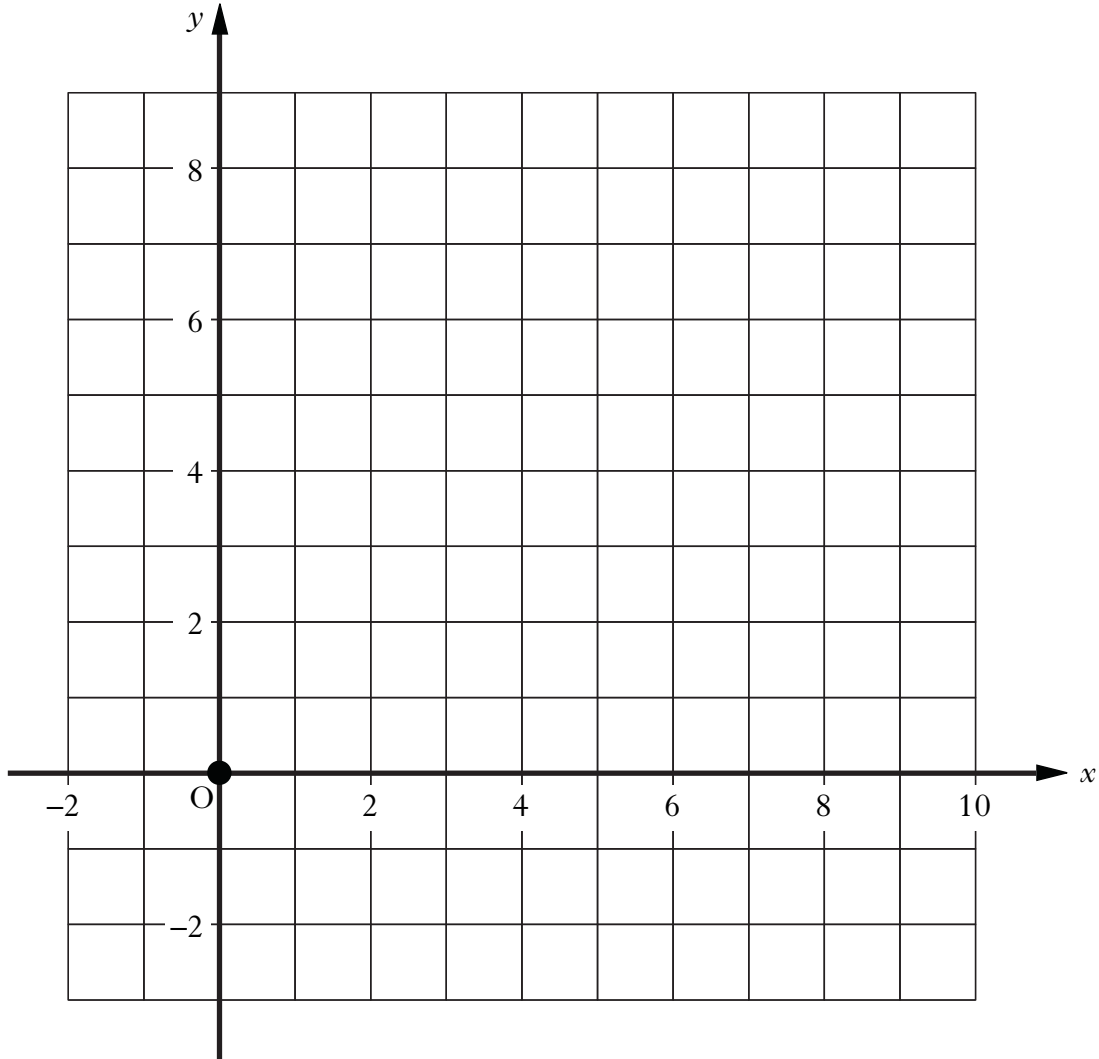
DO NOT
WRITE IN
THIS
MARGIN

Marks

	KU	RE
3		

5. (a) On the grid below, plot the points A(2, 6), B(8, 2) and C(6, -1).

Marks



	KU	RE
2		
1		
2		

(b) Plot a fourth point D so that ABCD is a rectangle.

(c) On the grid, show the point where the diagonals of the rectangle intersect.

Write down the coordinates of this point.

ADDITIONAL SPACE FOR ANSWERS