

FOR OFFICIAL USE

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	KU	RE
Paper 1		
Paper 2		
Total		

2500/29/01

NATIONAL
QUALIFICATIONS
2012

WEDNESDAY, 2 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

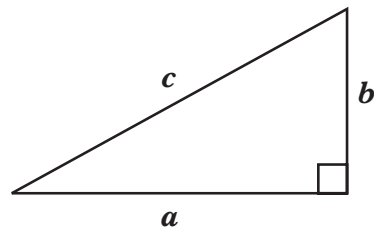
- 1 You may not use a calculator.**
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FORMULAE LIST

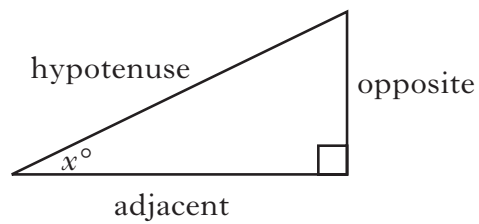
Circumference of a circle:	$C = \pi d$
Area of a circle:	$A = \pi r^2$
Curved surface area of a cylinder:	$A = 2\pi r h$
Volume of a cylinder:	$V = \pi r^2 h$
Volume of a triangular prism:	$V = Ah$

Theorem of Pythagoras:



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

Trigonometric ratios
in a right angled
triangle:

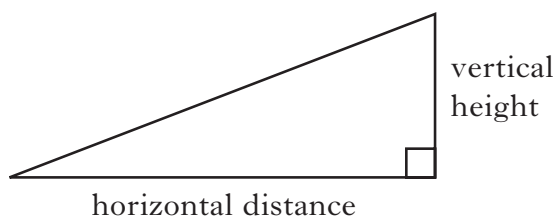


$$\tan x^\circ = \frac{\text{opposite}}{\text{adjacent}}$$

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

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

Gradient:



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

<i>Marks</i>	KU	RE
1		
1		
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2		

1. Carry out the following calculations.

(a) $14.6 - 3.21 + 5.3$

(b) 2.44×90

(c) $76.8 \div 6$

(d) $\frac{1}{4} + \frac{1}{3}$

[Turn over

2. Top footballers can earn £27.2 million each year.
Write 27.2 million in scientific notation.



Marks

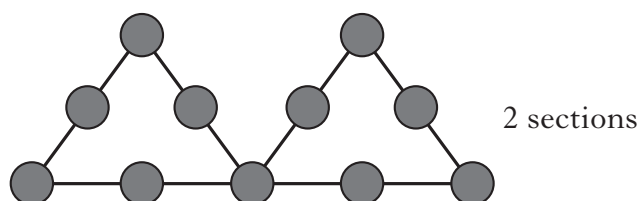
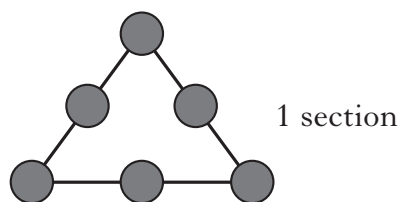
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Marks

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2		
2		

3. An amusement arcade has a lighting effect in the shape of triangles with coloured lights attached.

The lighting effect can be assembled in sections as shown below.



- (a) Complete the table below.

Number of sections (s)	1	2	3	4	5		12
Number of coloured lights (c)	6	11					

- (b) Write down a formula for calculating the number of coloured lights (c) when you know the number of sections (s).

- (c) The amusement arcade's lighting effect uses a total of 116 coloured lights.

How many sections are in the lighting effect?

[Turn over

4. From the numbers 50, 93, 43, 56, 85, 42 choose:

(a) two numbers which are multiples of seven;

(b) the prime number;

(c) the number which is closest to a square number.

<i>Marks</i>	DO NOT WRITE IN THIS MARGIN	
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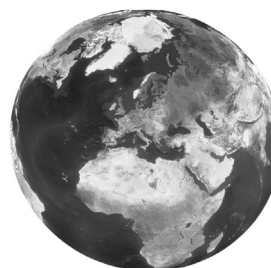
Marks

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5. A website shows some extreme temperatures recorded on Earth.

The highest temperature recorded was 58°C in Libya in 1922.

The lowest temperature recorded was -64°C in Siberia in 1973.



Find the difference between these two temperatures.

6. Starting with the smallest, write the following in order.

$\frac{1}{5}$ 0.05 51% 0.505 $\frac{5}{10}$

[Turn over

Marks

7. Colin works in a supermarket at the weekend.
He is paid the basic rate of £7.50 per hour on Saturdays.
He is paid at time and a half on Sundays.
Last weekend he worked 7 hours on Saturday and 6 hours on Sunday.



Calculate Colin's total pay for last weekend.

3

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ADDITIONAL SPACE FOR ANSWERS

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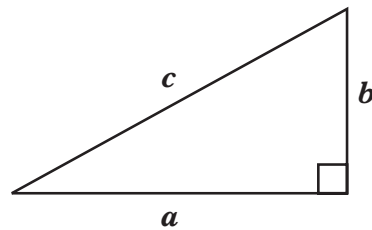
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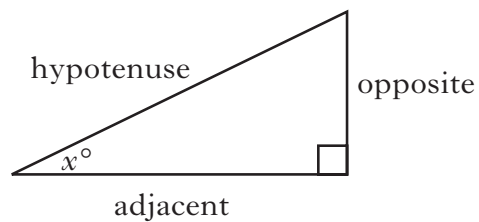
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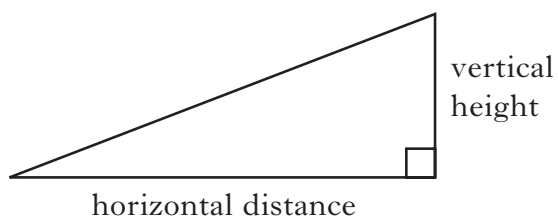


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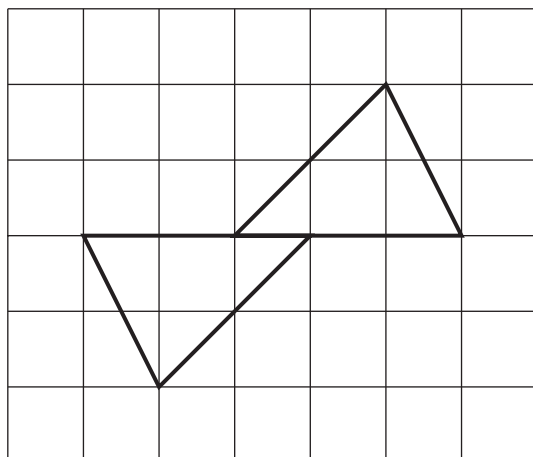


$$\text{Gradient} = \frac{\text{vertical height}}{\text{horizontal distance}}$$

Marks

KU	RE

2. John has drawn this design.



Using a scale factor of 2, draw an enlargement of John's design on the grid below.



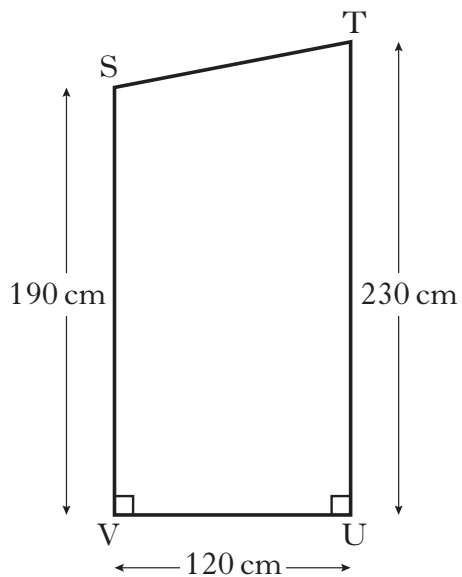
3

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4	

7. Maggie has bought a garden shed.

The dimensions for one side of the shed are shown in the diagram below.



Calculate the length of ST.

Do not use a scale drawing.

[Turn over

9. (a) Solve algebraically

$$6(2x - 3) = 42.$$

(b) Factorise

$$12t + 9u.$$

Marks

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3		
2		

[Turn over

Marks

KU	RE
4	

10. At the World Athletic Championships the mean time for the first semi-final of the 100 metres was 9.98 seconds.



For the second semi-final the times, in seconds, were:

10.21 10.04 9.92 9.98 10.04 9.94 9.9 9.73.

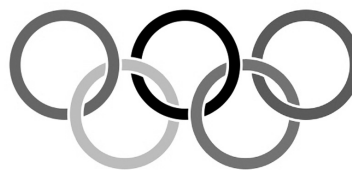
Was the mean time for the second semi-final better than the mean time for the first semi-final?

Give a reason for your answer.

Marks

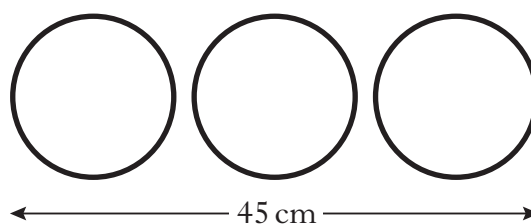
KU	RE
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12. The Olympic symbol consists of five identical circles.



Part of the symbol is shown in the diagram below.

- the length of the symbol is 45 centimetres
- the circles are equally spaced
- the gap between the adjacent circles is 1.5 centimetres.



Calculate the radius of a circle.

3

ADDITIONAL SPACE FOR ANSWERS

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