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## NATIONAL QUALIFICATIONS 2013

## MATHEMATICS



## STANDARD GRADE

Foundation Level
Paper 2
FRIDAY, 3 MAY 9.40 AM - 10.20 AM
2500/27/02

Fill in these boxes and read what is printed below.

Full name of centre

$\square$ Surname


Scottish candidate number

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1 You may use a calculator.
2 Answer as many questions as you can.
3 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.

4 Full credit will be given only where the solution contains appropriate working.
5 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.

Use blue or black ink. Pencil may be used for graphs and diagrams only.

1. A rectangular flag is shown below.


Calculate the area of the flag.

| WORKING |  |
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| ANSWER |  |

2. The scale drawing of a car is shown below.

(a) Measure the length of the car in centimetres.

ANSWER centimetres

The scale of the drawing is 1 centimetre represents 50 centimetres.
(b) Find the actual length of the car in centimetres.


Marks


1

3. The pattern below is made with tiles shaped as follows.

3. (continued)

4. Mrs Walsh is making some home improvements.

She needs the joiner, plumber and electrician to work together for 3 days in October.

These are the dates that they are available in October.

Joiner 8th $\rightarrow$ 20th
Plumber $\quad 15$ th $\rightarrow 22$ nd
Electrician Any day except Fridays, Saturdays and Sundays
Use the calendar for October, shown below, to find the 3 dates that Mrs Walsh can book the joiner, plumber and electrician to work together.

## OCTOBER

| Mon | Tue | Wed | Thu | Fri | Sat | Sun |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: |
|  | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 |  |  |  |
|  |  |  |  |  |  |  |


| WORKING |  |
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| ANSWER |  |

3

| KU | RE |
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5. A cuboid and a cube are shown below.

Cuboid

| (a) Calculate the volume of the cuboid. |
| :--- |
| WORKING |
| ANS |
| ANSWER |

(b) Which shape has the larger volume?

You must give a reason for your answer.


Marks


Cube


Marks

2

6. David is taking his 3 grandchildren to the cinema.

He buys the tickets online.

| CINEMA: Cost of tickets |  |
| :--- | :--- |
| Adult | $£ 8 \cdot 20$ |
| Child | $£ 5 \cdot 30$ |
| Senior | $£ 5 \cdot 40$ |
| Student | $£ 0.60$ |
| Online Booking Fee | $£ 0.50$ per ticket |



Marks

| KU | RE |
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David's ticket is at the senior rate.
His grandchildren's tickets are all at the child rate.
What was the total cost?
$\square$
7. Posters are put on a wall using drawing pins at their corners as shown below.

(a) Complete the table.

| Number of posters | 1 | 2 | 3 | 4 | 5 | 6 |  | 11 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Number of drawing pins | 4 | 6 |  |  |  |  |  |  |


(b) Write a rule for finding the number of drawing pins if you know the number of posters.


4

8. Eve is paid $£ 7 \cdot 50$ per hour.
(a) How much is Eve paid for working 4 hours?

(b) When Eve works overtime, she is paid double time.

Eve is paid $£ 90$ for working overtime.
How many hours of overtime did she work?


Marks

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2


3

9. The pie chart shows how the Khan family spend their annual income.

Khan Family - Annual Income

(a) What percentage of the Khan family's annual income is spent on transport?

(b) The Khan family's annual income is $£ 32000$.

How much money does the Khan family spend on food?


Marks


3
10. A number is called a palindrome if it reads the same backwards as forwards.

Some examples are shown below.
$161 \quad 212 \quad 353 \quad 383$
Write down the first number, bigger than 475 , that is a palindrome.

11. The opening times of a Recycling Centre are shown below.

| Recycling Centre Opening Times |  |
| :---: | :---: |
| Summer (April to September) |  |
| Mon - Fri | $0700-2000$ |
| Sat - Sun | $0830-1700$ |
| Winter (October to March) |  |
| Mon - Fri | $0700-1700$ |
| Sat - Sun | $0830-1600$ |

For how long is the Recycling Centre open on Saturday 9th February?

| WORKING |  |  |
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|  |  |  |
| ANSWER | hours | minutes |

12. The number of children with broken bones attending a hospital is shown in the table below.

| Month | Number of children |
| :--- | :---: |
| January | 8 |
| February | 7 |
| March | 7 |
| April | 7 |
| May | 4 |
| June | 7 |
| July | 9 |
| August | 4 |
| September | 5 |
| October | 2 |
| November | 5 |
| December | 7 |



Calculate the mean number of children with broken bones attending the hospital per month.

| WORKING |  |  |
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|  |  |  |
|  |  |  |
|  |  | children |

13. The ancient Mayan civilization in Mexico used a counting system based on dots and bars.

The chart below shows some numbers in the Mayan counting system.
(a) Write the calculation $4+6+7$ in the Mayan counting system.
(b) Write the answer to $4+6+7$ in the Mayan counting system.


| 0 | 1 | 2 | 3 | 4 |
| :---: | :---: | :---: | :---: | :---: |
| (11) | $\bullet$ | 0 | 000 | 0000 |


In our counting system,
$3+5=$
8
In the Mayan counting system, $000+\square=000$


1

3

14. A tractor tyre is 35 centimetres high when positioned as shown below.

(a) Write 35 centimetres in metres.

(b) A farmer stacks tractor tyres in piles.
For safety reasons, the maximum height of a pile of tyres is 2 metres.

What is the maximum number of these tyres which can be safely stacked in a single pile?

[END OF QUESTION PAPER]

Marks

2

| KU | RE |
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3



