**D**

**FORM 4**          **MATHEMATICS SCHEME D**          **TIME: 20 minutes**
**Non Calculator Paper**

Mark

# INSTRUCTIONS TO CANDIDATES

- **Answer all questions.**
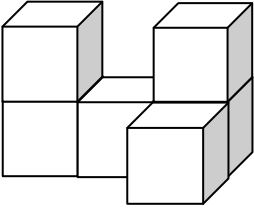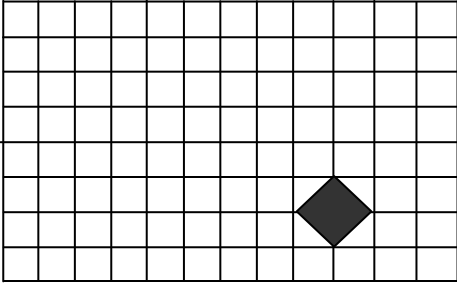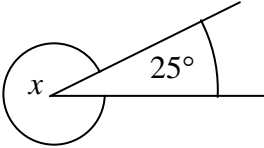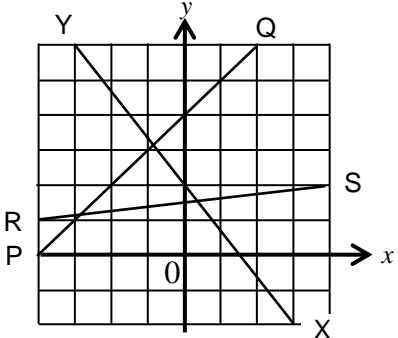
- **This paper carries a total of 20 marks.**

- **Calculators and protractors are NOT ALLOWED.**

| No. | Question | Space for working if required |
|-----|----------|------------------------------|
| 1. | One of these numbers is a prime number. Which one is it?<br><br>A) 2065    B) 3034    C) 2727    D) 37<br><br>Answer: _____ | |
| 2. |  What is the area of the triangle? (Each square is 1 cm by 1 cm.)<br><br>Answer: _____ cm$^2$ | |
| 3. | Write down the output of this number machine in the empty box.<br><br>Input  24  →  ÷ 4  →  + 2  →  Output | |
| 4. | Solve:        $2x + 5 = 15$<br><br>Answer: _____ | |
| 5. | Work out the mean of the following numbers:<br><br>12    12    12    22    12<br><br>Answer: _____ | |
| 6. | Fill in the box:<br><br>$0.4 = \dfrac{\Box}{5}$ | |
| 7. | Fill in the missing number:<br><br>10    15    ____    25    30 | |
| 8. | If  $y = 5x + 2$, find $y$ when $x = 3$.<br><br>$y =$ _____ | |

| 9. |  Each cube has side 2 cm.  What is the volume of the shape? <br><br> Answer: _____ cm$^3$ | |
|---|---|---|
| 10. | I have 6 gold and 3 silver rings in my pocket.  I pick one at random.  What is the probability that I pick a gold ring? <br><br> Answer: _____ | |
| 11. | Translate the shape shown by 6 units to the left and 4 units up. <br>  | |
| 12. | Find the size of *x*: <br>  <br> Answer: _____ ° | |
| 13. |  The equation <br><br> $y = x + 4$ <br><br> represents the line <br><br> A)  XY    B) PQ    C)  RS <br><br> Answer: _____ | |
| 14. | Work out <br><br> $2^3 - 4$ <br><br> Answer: _____ | |

| | | |
|---|---|---|
| 15. | Simplify:<br><br>$2p + q - p + 3q$ = _____ | |
| 16. | A school lies South East from the hospital (H).<br><br>The school is at _____.<br><br>*Choose from* A, B, C *and* D. | A •    *N*    • B<br><br>↑<br>H<br><br>D •    • C |
| 17. | D   10 cm   C<br>           10 cm<br>A   15 cm   B | Work out AD if the perimeter of ABCD is 47 cm.<br><br><br>Answer: _____ cm |
| 18. | Expand<br><br>$2(21 - 3x) =$ _____ | |
| 19. | The table below shows the amount of rainfall in centimetres:<br><br>| | May | June | July | August |<br>|---|---|---|---|---|<br>| | 5 | 3 | 2 | 4 |<br><br>Complete the bar graph. | May   June   July   August |
| 20. | The turtle starts from the position shown.<br>Sketch the figure drawn by the turtle for<br>this set of LOGO commands:<br><br>PD FD 100 LT 90 FD 50 LT 90 FD 100 | 🐢 |

DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department for Curriculum Management and eLearning
Educational Assessment Unit
**Annual Examinations for Secondary Schools 2013**

**D**

| **FORM 4** | **MATHEMATICS SCHEME D** | **TIME: 1h 40min** |
| --- | --- | --- |
| | **Main Paper** | |

| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Total Main | Non Calc | **Global Mark** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Mark | | | | | | | | | | | | | | | | | |

**Name:** _____     **Class:** _____

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**CALCULATORS ARE ALLOWED BUT ALL NECESSARY WORKING MUST BE SHOWN.
ANSWER ALL QUESTIONS.**

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1. (a) Work out the following:

   736 – 219 + 123 = _____

   (b) Two of the following numbers are square numbers.  Which are they?

   27        36        15        64        243

   The numbers are _____ and _____.

   (3 marks)

_____

2. (a) Simplify the ratios

   (i)  32 : 8                              Answer: _____

   (ii) 125 : 65                            Answer: _____

   (b) Write down the number 52,300 in words.

   _____

   (4 marks)

3.  (a)  Which one of these numbers is greater than ⅕ ?

$$0.15 \qquad ⅓ \qquad ⅐ \qquad 0.1$$

Answer: _____

(b)  Write $7.56 \times 10^3$ as an ordinary number.  _____

(c)  One of these dates is not correct.  Which one is it?

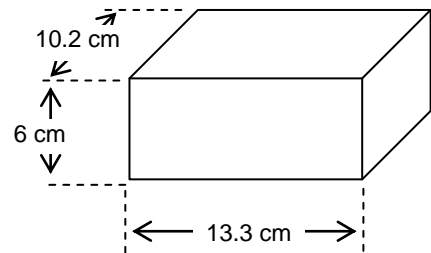28 February        31 April        30 March        31 July

Answer: _____

(d)  What is 25% of 116?
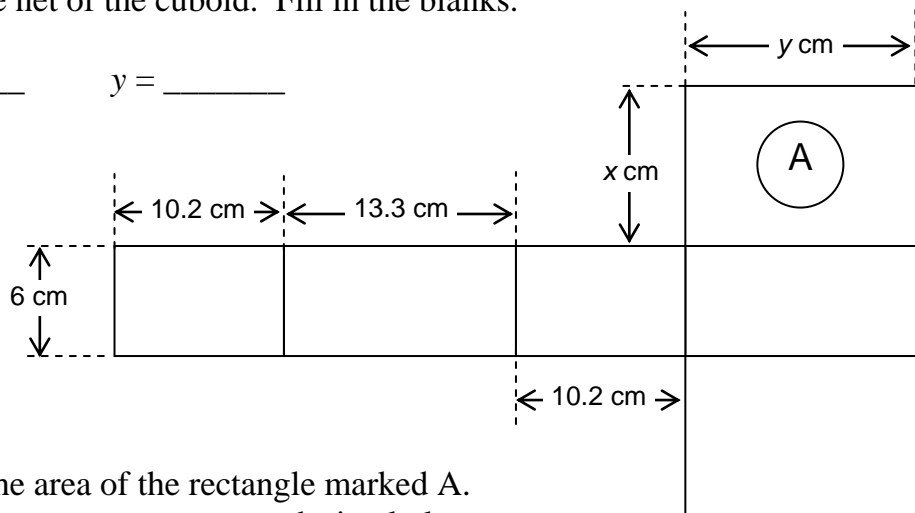
Answer: _____

(4 marks)

_____

4.  (a)  Work out the volume of the cuboid.

10.2 cm

6 cm

13.3 cm

Answer:  _____cm$^3$

(b)  Below is the net of the cuboid.  Fill in the blanks.

$y$ cm

$x =$ _____        $y =$ _____

$x$ cm

A

10.2 cm        13.3 cm

6 cm

10.2 cm

(c)  Work out  the area of the rectangle marked A.
Give your answer correct to one decimal place.
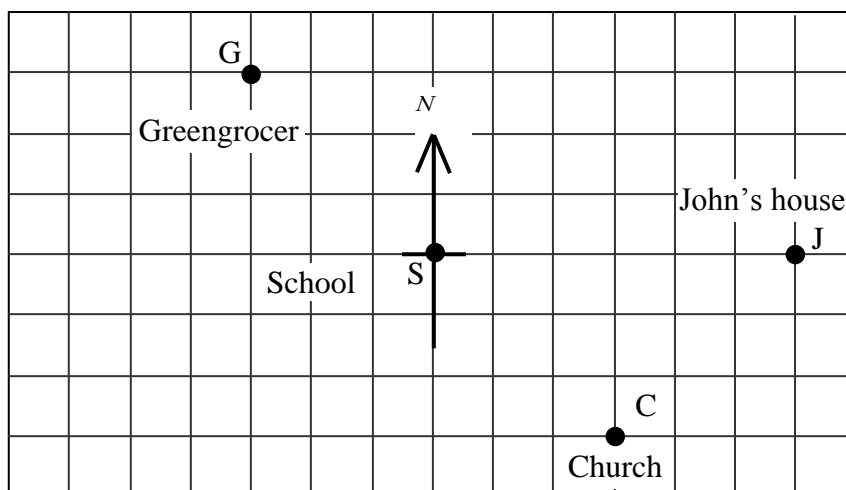
Answer: _____ cm$^2$

(6 marks)

5.   Use the map drawn below to answer the questions.  *N*  denotes the North direction.



Choose your answers from the eight main compass directions
N, S, W, E, NW, NE, SW and SE.

(a)   The church lies _____ of the school.

(b)   John's house lies _____ of the church.

(c)   The greengrocer lies _____ of the church.

(d)   Choose the angle SCJ from the values given below.
      45°      135°      90°      60°                          Answer: _____°

(4 marks)

_____

6.   (a)  Solve the equations:

     (i)    $5x + 6 = 26$

                                                              Answer: _____

     (ii)   $4x - 1 = 11$

                                                              Answer: _____

     (b)  Expand    $2(3 - x + 2y)$

                                                              Answer: _____

(6 marks)

7. (a) Complete the following sequence:

3     12     21     ____     39     ____

(b) I have fifteen 5c coins, twenty 10c coins and five 50c coins in my pocket. How much money do I have altogether?

Answer: €_____

(5 marks)

_____

8. (a) A cinema ticket costs €6.40.

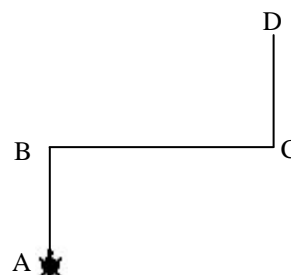(i)    I buy two cinema tickets. What change will I get from €15?

Answer: €_____

(ii)   How many cinema tickets can I buy with €20?

Answer: _____

(b) In the LOGO shape shown AB = CD = 50 turtle steps and BC = 100 turtle steps. Complete the program to draw the shape.

**PD**
**FD 50**
____ **90**
**FD** _____
**LT** _____
**FD** _____

D

B         C

A ✹

(7 marks)

Name: _____  Class: _____

9.    (a)  An aeroplane can carry 160 passengers when full.  How many passengers is the aeroplane carrying when it is ¾ full?

Answer: _____

(b)  An umbrella costs €5.20.  How much do 20 umbrellas cost?

Answer: €_____

(c)  (i)  Express 3915.6 to the nearest ten:  _____.

(ii)  Work out:    2 (−145 − 55) = _____.

(6 marks)

10.    In a box there are 9 red, 6 blue and 3 yellow counters.  I pick a counter at random. Answer the following questions, giving each answer in its simplest form.

(a)  What is the probability of picking a red counter?

Answer: _____

(b)  What is the probability of picking a blue counter?

Answer: _____

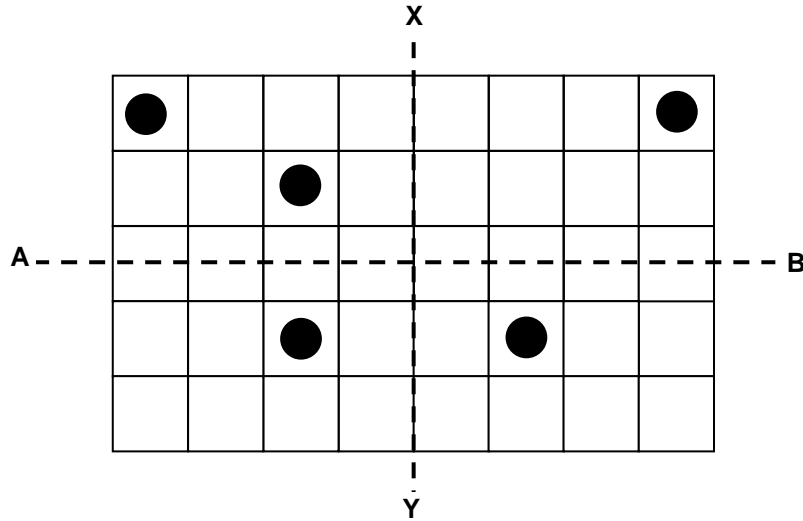(c)  What is the probability of picking a yellow counter?

Answer: _____

I remove the yellow counters.

(d)  What is the probability of picking a red counter?

Answer: _____
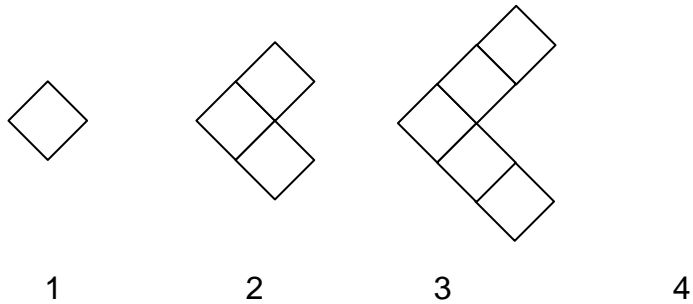
(4 marks)

11. (a) The diagram shows the tiles on the floor of a yard.



    (i) Make the pattern symmetrical about the lines AB and XY by marking three tiles with a black circle.

    (ii) Is there another line of symmetry?
        Write YES or NO.                    Answer: _____

(b)



    1            2            3            4

    (i) Draw shape 4.

    (ii) Shape 5 will have _____ squares.

    (iii) Choose the correct rule for the number of correct squares in shape $n$.

        (A) $n + 3$      (B) $6 - 2n$      (C) $2n - 1$      (D) $3n + 1$

                                     Answer: _____

                                       (7 marks)

12. The manager of a hotel has collected the following data on the nationality of the guests in his hotel:

| Nationality | British | Italians | French | Germans | Belgians | Polish |
|---|---|---|---|---|---|---|
| Number of Guests | 110 | 55 | 45 | 70 | 30 | 20 |



**Nationality**
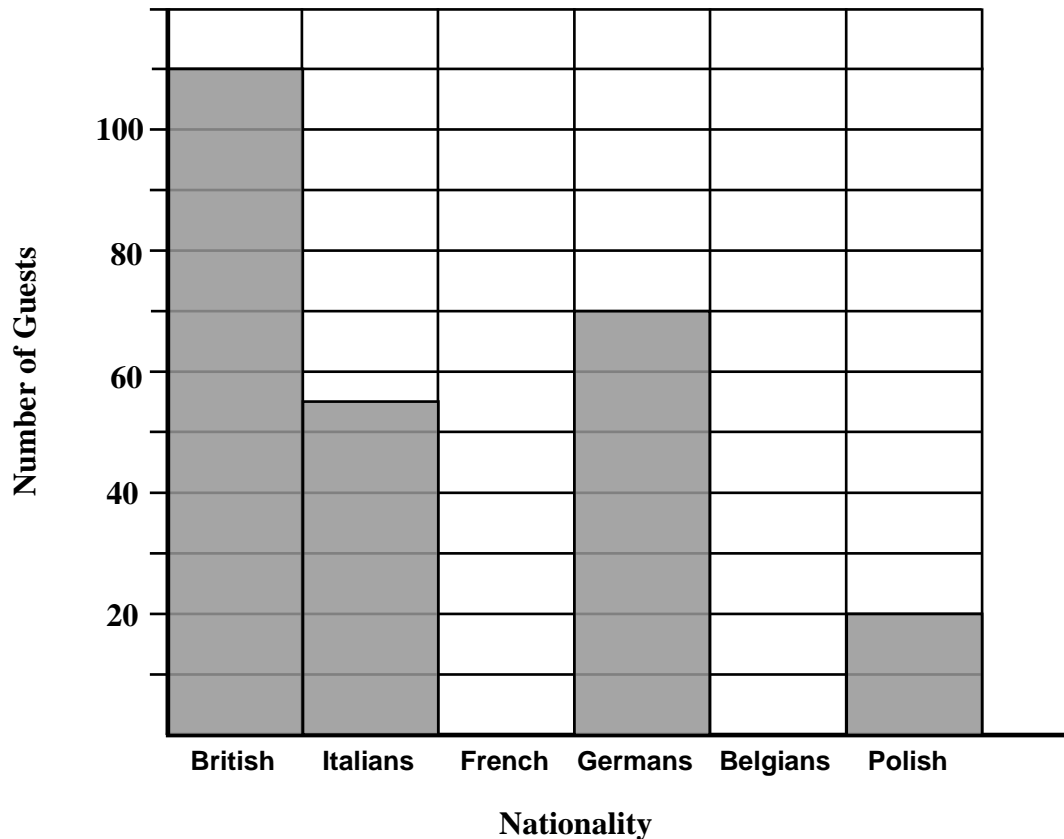
(a) Use the table to complete the bar chart.

(b) What is the total number of guests in the hotel?

Answer: _____

(c) A guest is chosen at random.  What is the probability that the guest is British? *Express the probability in its simplest form.*

Answer: _____

(d) What is the ratio of Italians to Germans?       _____ **:** _____
*Express the ratio in its simplest form.*

(9 marks)

13.    (a)    Mark the points (−5, 4)  and (4, −5)  on the grid.

       (b)    Draw the line passing through these two points.

       (c)    Use your graph to complete the following pairs of coordinates:

$$(-3 , \text{\_\_\_\_} )$$

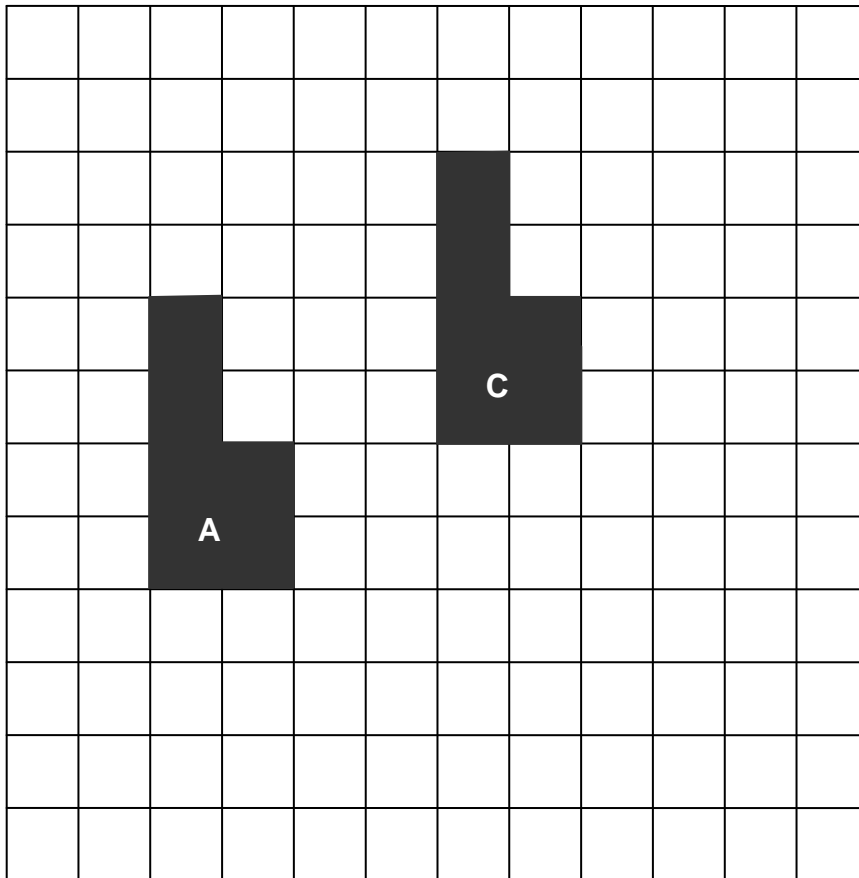$$( \text{\_\_\_\_} , 3)$$
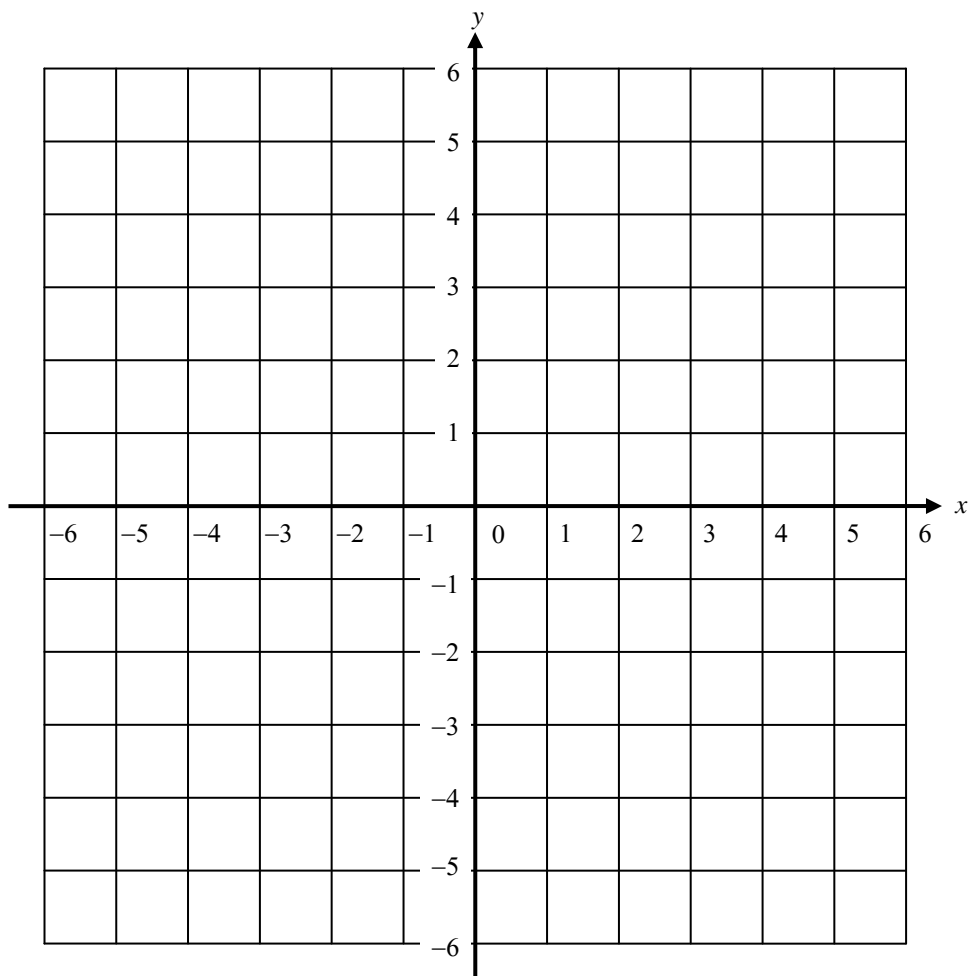


(6 marks)

14.    (a) (i)   A is translated by moving 6 units to the right and 4 units down.
             Draw the shape and label it B.

       (ii)   A is translated to C by moving

              _____ units to the right and _____ units up.



   (b)   There are seven drawers.  The number of pencils in each drawer is as follows:

              12    5    2    13    30    10    12

       (i)   What is the **mean** number of pencils?

                                                    Answer: _____
       (ii)   What is the **median**?

                                                    Answer: _____

                                                            (9 marks)

_____
**End of Paper**

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