DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department for Curriculum Management and eLearning
Educational Assessment Unit
Annual Examinations for Secondary Schools 2012

FORM 4
MATHEMATICS
Non Calculator Paper

TIME: 20 minutes

Name: _________________________                                                                  Class: ________

Question Mark

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>Total</th>
</tr>
</thead>
</table>

INSTRUCTIONS TO CANDIDATES

- Answer all questions.
- This paper carries a total of 20 marks.
- Calculators and protractors are NOT ALLOWED.
<table>
<thead>
<tr>
<th>No.</th>
<th>QUESTION</th>
<th>SPACE FOR WORKING (IF REQUIRED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Write down the smallest number:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A) 0.0132  B) 0.0092  C) $\frac{1}{2}$  D) $\frac{1}{10}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Answer: ___________</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Work out</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$-1655 - 45 = $_________</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Write down the area of the following parallelogram:</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Parallelogram Diagram" /></td>
<td></td>
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<tr>
<td></td>
<td>Answer: __________.cm²</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Solve: $x - 20 = 5$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Answer: __________</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>One of these numbers is a prime number. Which one is it?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A) 1975  B) 30031  C) 2727  D) 1210</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Answer: _________</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Fill in the box: 20% is [ ] 5</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Work out the mean of the following numbers:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 25 25 15 20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Answer: ________________________</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>An estimation for the area of a circle of radius 4 cm is</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A) 6 cm²  B) 48 cm²  C) 64 cm²  D) 24 cm²</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Answer: __________.cm²</td>
<td></td>
</tr>
</tbody>
</table>
9. What is the area of the triangle? 
   (Each square is 1 cm by 1 cm.)
   Answer: ______ cm²

10. John spends three times as much as Paul on chocolate. John 
    spends €4.20 on chocolate. How much does Paul spend?
    Answer: €_______

11. Write down the output of this number machine in the empty box.
    
    | Input | + 6 | ÷ 2 | Output |
    |-------|-----|-----|--------|
    | 10    |     |     |        |
    
    Answer: ________

12. Find the size of \( x \):
    \[
    \begin{align*}
    &\begin{array}{c}
    140^\circ \\
    x
    \end{array} \\
    &\end{align*}
    \]
    Answer: ________°

13. A box contains 3 white marbles and 9 black marbles. I pick a 
    marble at random. What is the probability that I pick a white 
    marble?
    Answer: ________

14. A line has the equation \( y = 5 - 2x \).
    When \( x = 3 \), \( y = \) ________.
15. Simplify:
\[ 3a + 2b - a + 3b = \quad \]

16. The number 545 rounded to the nearest 10 is
A) 545      B) 545.2      C) 550      D) 5452.3

Answer: __________

17. PQRSTU is a regular hexagon. One of the following lines is a line of symmetry. Which one is it?
A) QR      B) RT      C) PS      D) QS

Answer: _________

18. A rod is 2.36 m long. What is its length in millimetres?
A) 236      B) 2360      C) 0.236      D) 23600

Answer: __________ mm

19. The table below shows the number of people who applied for a job in a company.

<table>
<thead>
<tr>
<th></th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete the bar graph.

20. The turtle starts from the position shown. Sketch the figure drawn by the turtle for this set of LOGO commands:

PD LT 90 FD 100 RT 90 FD 50 RT 90 FD 100
1. (a) Work out the following correct to one decimal place:

\[ 545.25 - 415.37 \]

Answer: _____________

(b) Work out the following correct to the nearest 10:

\[ 2542 + 791 \]

Answer: _____________

(4 marks)

2. (a) Simplify the ratios

(i) 12:15  

Answer: _____________

(ii) 25:150  

Answer: _____________

(b) Find \( x \) given that

\[ 2x + 1 = 5 \]

Answer: _____________

(5 marks)
3. Given that \( z = 2x + y^2 \)
   (a) Calculate the value of \( z \) when \( x = 1, y = 2 \).
   
   Answer: 

   (b) Calculate the value of \( z \) when \( x = -2, y = 3 \).
   
   Answer: 

   (4 marks)

4. A pizza is in the form of a circle of radius 20 cm, with O as centre.

   (a) Work out the length of the circumference of the pizza, giving your answer correct to two decimal places.
   \( C = 2\pi r \)

   Answer: 

   (b) I cut a quarter of the pizza as shown. What is the perimeter of the remaining pizza to the nearest centimetre?

   Answer: 

   (6 marks)

5. (a) Work out the area of the triangle correct to two decimal places.

   \[ \text{Area} = \frac{1}{2} \times \text{base} \times \text{height} \]

   Answer: 

   (b) Solve the equation \( 3x + 2 = 8 \)

   Answer: 

   (5 marks)
6. Calculate the value of angles $s$, $x$, $y$ and $z$.

\[
\begin{align*}
\angle s &= \quad \circ \\
\angle x &= \quad \circ \\
\angle y &= \quad \circ \\
\angle z &= \quad \circ \\
\end{align*}
\]

(5 marks)

7. (a) I buy a coat costing €250 at 15% discount. How much do I pay for the coat?

Answer: €___________

(b) A car costs €4500. I pay $\frac{1}{2}$ of this amount.

(i) How much do I still have to pay?

Answer: €___________

(ii) I pay the rest of the money in equal sums for the next six months. How much do I have to pay each month?

Answer: €___________

(6 marks)
8. (a) Work out \( \frac{1}{4} \) of 3.64 kg. (Give your answer in grams.)

Answer: ___________ g

(b) Change 6152 g into kilograms.

Answer: ___________ kg

(4 marks)

9. (a) I changed a €10 note into one €5 note, three €1 coins and the rest in 20c coins. How many 20c coins do I have?

Answer: ________ coins

(b) A **fair** coin is tossed 100 times. Estimate the number of times the coin shows a Head.

Answer: ________________

(4 marks)

10. Solve the equations:

(a) \( 4x + 6 = x \)

Answer: \( x = \) _______

(b) \( 3x - 2 = x + 8 \)

Answer: \( x = \) _______

(6 marks)
11. (a) Kyle and Petra have altogether 36 CD’s.

   (i) If Petra has $x$ CD’s and Kyle has $y$ CD’s complete the following equation:
   
   $$x + \_\_\_ = 36$$

   (ii) Kyle has five times as many CD’s as Petra. Complete the following equation:

   $$y = \_\_\_x$$

   (iii) Petra has 6 CD’s. How many CD’s has Kyle?

   Answer: \________CD’s

(b) Two of the nets shown are that of a cube. Which are they?

   Tick the correct answers.

   ![Nets](image)

   (6 marks)

12. Luke draws the diagram below using LOGO.

   ∠ABC and ∠BCD are both right angles, and AB = CD.

   (a) Complete the LOGO program which draws the shape.

   ```logo
   PD
   FD 50
   RT _____
   FD 100
   _____ 90
   FD _____
   ```

   (b) Write down the perimeter in turtle steps of the shape drawn.

   Answer: \________

   (5 marks)
13. The headmaster of a school asked a number of students how they spend their free time. The table shows how the students spend their time.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Football</th>
<th>Tennis</th>
<th>Chatting</th>
<th>Watching TV</th>
<th>Going out</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>30</td>
<td>40</td>
<td>110</td>
<td>50</td>
<td>70</td>
<td>55</td>
</tr>
</tbody>
</table>

(a) Use the table to complete the following bar chart.

(b) What is the total number of students questioned by the headmaster?

Answer: _________

(c) What is the ratio of the number of students who chat to the number of students who read?

Answer: _________

(8 marks)
14. The points A and B have coordinates (−2, −2) and (2, 1) respectively.

(a) Mark the points A and B on the grid.

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

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

(−4, ___), (4, ___)

(6 marks)
15. The diagram shows part of a regular hexagon. The dotted line is a line of symmetry.

(a) Complete the diagram.

(b) How many lines of symmetry does this hexagon have?

Answer: _____________

(c) What is the order of rotational symmetry of the hexagon?

Answer: _____________

(d) Each side is 5.63 cm long. What is the perimeter of the hexagon?

Answer: _____________

(6 marks)

End of Paper