**Annual Examinations for Secondary Schools 2014**

**FORM 3 MATHEMATICS**  
Non Calculator Paper  
**TIME: 30 minutes**

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**Name:** ___________________________  
**Class:** ____________

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<table>
<thead>
<tr>
<th></th>
<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>Total</th>
</tr>
</thead>
</table>

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**Instructions to Candidates**

- Answer ALL questions.
- This paper carries a total of 25 marks.
- Calculators and protractors are NOT ALLOWED.
1. Fill in:
   a) 5, 9, 13, 17, ___, ____
   b) 1, 2, 4, 8, ___, ____

   (2 marks)

2. Work out:
   a) 24 + 35 = _____
   b) (−8) + 6 = _____
   c) (8 + 4) × 10 = _____

   (3 marks)

3. Underline the regular polygons.

   (2 marks)
4. In a sale all items are sold at **half price**. Mary buys a skirt. The original price was €36.50.

   a) How much does Mary pay?
   
   €______

   b) During the same sale Mary buys a pair of jeans for her brother.
   Its original price was €28. How much does she pay in **ALL**?
   
   €______

   (4 marks)

5. A loaf of bread costs 52c and a tin of beans costs 21c.
   
   a) Complete the following table to find the total cost.

<table>
<thead>
<tr>
<th>2 loaves at 52c each cost</th>
<th>€</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 tins of beans at 21c each cost</td>
<td>€ ______</td>
</tr>
<tr>
<td>Total Cost</td>
<td>€</td>
</tr>
</tbody>
</table>

   b) Work out the change from €5.

   Ans: € ______

   (4 marks)
6. Work out:
   a) 20% of €40
      Ans: €_______
   b) 10% of 15 m
      Ans: _______m
      (4 marks)

7. a) Draw a line to divide the shape below into 2 rectangles.

   b) Calculate the area of the large rectangle.  ________cm²
   c) Calculate the area of the small rectangle.  ________cm²
   d) What is the total area?  ________cm²
      (4 marks)

8. The area of a square is 16 cm². What is the length of one side?
   length = ________cm
   (2 marks)
1. Write the number 512.056 correct to:

   a) the nearest whole number  _______

   b) 1 decimal place  _______

   c) the nearest hundred  _______

   (3 marks)
2. a) What fraction of this diagram is shaded? ______

b) What fraction of this diagram is shaded? ______

This can be simplified to ______.

c) Work out the following. Give your answers in the simplest form.

i) \( \frac{2}{5} + \frac{1}{2} \) 

ii) \( \frac{7}{9} - \frac{2}{3} \)

Ans:______ Ans:______

(9 marks)
3. a) Simplify: \(3b + 5 - 2b - 3 = \) ____________

   b) Expand: \( 5(6a - 7) = \) ____________

   (4 marks)

4. Draw the next two patterns in each row.

   (4 marks)
5. State which of the following shapes are 2 D and which are 3 D.

- Cylinder
- Circle
- Rectangle
- Cube

3 D

6. Each lesson in a school lasts 40 minutes. Peter starts with a double Mathematics lesson. The first lesson starts at 8:30.

a) How long is this double lesson in hours and minutes? _____h _____min

b) At what time does the double lesson end? _______

c) The teacher gives the students a 10 minute break.
   What fraction is this of the total time of the double lesson?

   Simplify your answer as much as possible. _______
7. Work out the angles marked with letters in the diagrams below.

\[ p = \underline{\text{___}}^\circ \quad \quad \quad q = \underline{\text{___}}^\circ \]

(6 marks)

8. The diagram shows angle ABC.

a) Use your \textbf{ruler and compasses only} to draw line BX which bisects angle ABC.
   Show all your construction arcs.

b) Now use your protractor to measure angle XBC. \quad \text{Angle XBC} = \underline{\text{___}}^\circ

(5 marks)
9. Look at the grid below.

a) What are the coordinates of point A shown? (_____,_____)  

b) Plot and label on the above grid each of these points: B (16,4); C (16,10) and D (2,10).  

c) Join A to B, B to C, C to D and D to A.  

d) What is the name of the shape formed? ________________  

e) Join point A to point C.  

f) Find the area of triangle ABC.  

Ans:_______  

(8 marks)
10. John got the following marks in the Italian tests.

65, 80, 45, 58, 60, 52, 74.

a) Work out John’s mean mark.

Mean mark ______

b) What is his median mark?

Median mark______

(5 marks)

11. The table shows the coins in Amy’s purse.

<table>
<thead>
<tr>
<th>Coin</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>10cent</td>
<td>5</td>
</tr>
<tr>
<td>20cent</td>
<td>2</td>
</tr>
<tr>
<td>50cent</td>
<td>3</td>
</tr>
<tr>
<td>€1</td>
<td>2</td>
</tr>
</tbody>
</table>

a) How many coins are there in Amy’s purse? ______

b) Amy takes out a coin without looking. Work out the probability that the coin is

(i) a 10cent ______

(ii) a €1 ______

(iii) worth at least 50cent ______

(iv) worth more than €1 ______

(5 marks)
12. This table shows the number of people taking part in different activities at a sports centre.

<table>
<thead>
<tr>
<th>Sport</th>
<th>Football</th>
<th>Basketball</th>
<th>Tennis</th>
<th>Swimming</th>
<th>Squash</th>
<th>Aerobics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of people</td>
<td>12</td>
<td>10</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td>8</td>
</tr>
</tbody>
</table>

a) What is the total number of persons taking part? _____

b) Complete the numbers on the vertical axis.

c) Now represent the information in the above table as a bar chart on the grid below.

```
0 1 2 3 4 5 6 7 8
Number of people
```

```
Football  Basketball  Tennis  Swimming  Squash  Aerobics
```

(5 marks)
13. a) Complete the following function machines:

i) \[ \begin{array}{c}
16 \rightarrow +7 \\rightarrow -3 \rightarrow \text{ ? } \\
\end{array} \]

ii) \[ \begin{array}{c}
\text{ ? } \rightarrow \times 3 \rightarrow \div 2 \rightarrow 12 \\\n\end{array} \]

b) Solve the equation \( 2f + 7 = 15 \).

\[ \text{Ans } f = \underline{\underline{7}} \]

c) Work out the value of \( 3(2y + z) \) when \( y = 4 \) and \( z = 3 \).

\[ \text{Ans } \underline{\underline{39}} \]

(8 marks)
14. Liam has two rectangles of different sizes.

He makes this pattern with them.

Calculate the lengths of A and B.

Ans: A = _______ cm; B = _______ cm

(6 marks)