Annual Examinations for Secondary Schools 2014

FORM 5 MATHEMATICS SCHEME C TIME: 20 minutes
Non Calculator Paper

Name: ________________________________ Class: __________

Instructions to Candidates

▪ Answer ALL questions.
▪ This paper carries a total of 20 marks. Each question carries 1 mark.
▪ Calculators and protractors are not allowed.
<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Space for Working</th>
</tr>
</thead>
</table>
| 1   | Which of the following is equal to 15?  
     | A. $5 \times -3$  
     | B. $-5 \times 3$  
     | C. $-5 \times -3$ | Ans: __________ |
| 2   | The circle is divided into 5 equal parts.  
The diagram shows that 2 parts are shaded.  
What **percentage** of the circle is shaded? | Ans: _______% |
| 3   | **Complete** the missing term in the sequence below.  
     | 53, 52, 50, 46, _____, 22 | |
| 4   | Tony has to cover the area shown below with 1 m$^2$ tiles.  
**How many tiles** does he need?  
![Diagram of a rectangle]  
5 m  
3 m | Ans: _______ tiles |
| 5   | One of the angles of an **isosceles** triangle is 80°.  
One of the other angles **cannot** be:  
A. 20°  
B. 40°  
C. 50°  
D. 80° | Ans: __________ |
| 6   | Mary needs to take the bus to Valletta. The bus number is:  
- Between 30 and 50  
- A multiple of 12  
- A square number | The **bus number** is ________ |
| 7   | 75 students and 5 teachers are going out on a school outing.  
Work out the number of minivans and coaches needed without having any **empty seats left**.  
![Minivan and Coach Diagram]  
**Minivan**  
Up to 17 persons  
**Coach**  
Up to 46 persons  
Ans: _______ minivan/s, _______ coach/es |
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>A quadrilateral has only one pair of parallel sides. Underline the correct shape.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A. Square  B. Rhombus  C. Kite  D. Trapezium</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>A TV talk show starts at 20:40 and is 70 minutes long. At what time does the talk show end?</td>
<td>Ans: <strong>:</strong>__</td>
</tr>
<tr>
<td>10</td>
<td>Look at rectangle W below. Translate W by 6 squares to the right and 1 square down.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Work out: [ \frac{1}{2} - \frac{1}{8} ]</td>
<td>Ans: ________</td>
</tr>
<tr>
<td>12</td>
<td>Factorise: [ 9x - 12 ]</td>
<td>Ans: ____________</td>
</tr>
<tr>
<td>13</td>
<td>The acute angle between the blades of the scissors is about:</td>
<td>Ans: ________</td>
</tr>
<tr>
<td></td>
<td>A. 40°  B. 85°  C. 120°</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Question</td>
<td>Space for Working</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>14</td>
<td>Joe, Pat and Rita share a pizza equally between them. Shade the fraction that Rita gets.</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>The radius of a circular roundabout is 5 m. Use ( C = \pi d ) to estimate the circumference of the roundabout.</td>
<td></td>
</tr>
</tbody>
</table>

\[
\text{Circumference} = \underline{\quad} \text{m}
\]

| 16  | Which of the expressions below is the same as \( 4x^2 \)?  
A. \( 4 \times x^2 \)  
B. \( 4 + x^2 \)  
C. \( 4(x + x) \) |

**Ans:** \underline{\quad}  

| 17  | Choose the correct word to complete the statement below:  
*When a shape is enlarged its perimeter*  
A. Decreases  
B. Remains the same  
C. Increases |

| 18  | Which of the following is the best offer?  

**OFFER A**  
2 bottles of shampoo for €5.60  

**OFFER B**  
3 bottles of shampoo for €7.50  

Offer \underline{\quad}  

| 19  | Write down the total number of squares in this shape.  
(Hint: There are more than 9.)  

\[
\begin{array}{c}
\text{Ans: } \underline{\quad}
\end{array}
\]

| 20  | When tossing two coins the probability of getting a head and a tail is:  
A. \( \frac{1}{4} \)  
B. \( \frac{1}{3} \)  
C. \( \frac{1}{2} \)  

**Ans:** \underline{\quad}  


Name: ___________________________ Class: ____________

Instructions to Candidates

- Answer ALL questions.
- This paper carries a total of 80 marks.
- Calculators are allowed. Show all necessary working.

1. Mary won €100. She decided to give €12 each to her 6 friends.

   Which of the following calculations gives the answer to the money she has left?

   A. \((100 - 12) \times 6\)

   B. \(12 \times 6 - 100\)

   C. \(100 - 12 \times 6\)

   Answer: _________________  
   (2 marks)

2. Solve the following equations:

   a) \(\frac{x}{5} = 7\)

   \(x = \underline{\hspace{2cm}}\)  
   (4 marks)

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

   \(x = \underline{\hspace{2cm}}\)  
   (4 marks)
3.  
   a) Fill in:

\[
\frac{3}{7} + \square = 1
\]

b) Fill in:

\[
\frac{5}{8} - \square = \frac{1}{2}
\]

c) Fill in:

\[
\square \times 6 = 4
\]

(6 marks)

4.  
   Mark bought a plant 70 cm high. Each year the plant grows by 20%.

   a) \(20\% = \frac{20}{100} = \frac{1}{5}\)

   b) Write down your working to show that the height of the plant after 1 year will be 84 cm.

   c) How high will the plant be after the second year?

\[
\square \text{ cm}
\]

(6 marks)
5. The diagram shows a playing field made up of two areas X and Y. Area X is a rectangle with length $3a$ m and area Y is a square of length 4 m.

\[ \text{X} \quad 3a \quad \text{Y} \quad 4 \]

a) **Work out** the area of square Y.

\[ \underline{\phantom{0}} \text{ m}^2 \]

b) **Fill in** and work out the area of rectangle X.

\[ 3a \times \underline{\phantom{0}} = \underline{\phantom{0}} \]

c) **Fill in** and work out the total area of the playing field.

**Hint:** Use your answers in questions a) and b).

\[ \underline{\phantom{0}} + \underline{\phantom{0}} \]

d) i) **Underline** the correct expression for the perimeter of the whole playing field.

\[ 6a + 20 \quad 3a + 4 \quad 6a + 16 \]

ii) **Work out** the perimeter of the whole playing field, given that $a = 7$.

Perimeter = \[ \underline{\phantom{0}} \text{ m} \] 

(8 marks)
6. Look at the windfinder table below. The table shows information about the weather forecast.

<table>
<thead>
<tr>
<th>Windfinder Table</th>
<th>Report</th>
<th>Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>01:00</td>
<td>04:00</td>
</tr>
<tr>
<td>Wind speed (knots)</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Wave height (m)</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td>Wave period (s)</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Air temperature (°C)</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

Use the table to answer the following questions:

a) At what time will wind speeds reach 23 knots?

_____:_____

b) What is the mode for the wave period?

_________ s

c) Work out the mean air temperature.

_________ °C

d) Work out the range of the wave height.

_________ m

e) Work out the median wind speed.

_________ knots

f) Underline the correct statement:
   I. As wave speed increases, the wave height decreases.
   II. As wave speed increases, the wave height increases.
   III. As wave speed increases, the wave height remains the same.

g) Late in the afternoon, Alan decides to travel from Gozo to Malta in his small sailing boat. Give a reason why it might not be safe to do so.

__________________________________________________________________________

__________________________________________________________________________

(11 marks)
7. The diagram below shows the map of Comino.
Point \( M \) shows St Mary’s tower, \( B \) is Blue Lagoon and \( C \) is Comino’s church.

![Diagram of Comino's map](image)

a) The bearing of St Mary’s tower (\( M \)) from Blue Lagoon (\( B \)) is 140°.
   The bearing of Comino’s church (\( C \)) from St Mary’s tower (\( M \)) is 034°.
   **Mark and label** this bearing on the diagram.

b) **Work out** the bearing of \( M \) from \( C \) (the angle marked at \( C \) in the diagram).

\[ \text{_______ cm} \]

°

\[ \text{_______ cm} \]

\[ \text{_______ m} \]

(8 marks)
8. The diagram shows a **semicircular** swimming pool of diameter 8 m. The swimming pool is in a garden 12 m long and 6 m wide.

a) Work out the **radius** of the swimming pool.

______ m

b) Work out the **area** of the **semicircular** pool.
(Give your answer correct to the **nearest whole number**.)

**Note:** Area of circle = \( \pi r^2 \)

Area = __________ m\(^2\)

c) Work out the **rectangular area** of the **garden**.

Area = __________ m\(^2\)

d) Work out the **area not occupied** by the pool (shaded area).

Area = __________ m\(^2\)

(9 marks)

9. Using **ruler and compasses only**, construct a triangle ABC where AB = 10 cm, BC = 6 cm and AC = 8 cm.

a)
b) **Underline** the correct answer.

Angle C is equal to \(30^\circ, \ 60^\circ, \ 90^\circ, \ 120^\circ\)

c) **Work out** the area of triangle ABC.

\[ \text{cm}^2 \]

(8 marks)

10. a) **Underline** the correct answer.

i) Shape X has \(5, \ 6, \ 8\) equal sides and angles. So, X is called a (regular pentagon, regular hexagon, regular octagon).

ii) The sum of the exterior angles of shape X is \(90^\circ, \ 180^\circ, \ 360^\circ\).

b) **Work out:**

i) The size of one exterior angle of shape X.

\[ \text{°} \]

(7 marks)

ii) The size of one of the interior angles of shape X.

**Note:** You can use the formula \( S = 180(n - 2) \)
11. A toymaker has a block of wood with the following measurements: 30 cm by 16 cm by 11 cm.

He wants to cut as many cubes, of side 3 cm, as possible from this cuboid.

a) **How many** such cubes can he cut?

   _______ cubes

b) What is the **volume** of wood that is **left over**?

   _______ cm$^3$

(7 marks)

12. Monica has 3 number cards A, B and C.

   The **smallest number** on the cards is 32.

   When the numbers on the cards are added **two at a time**, the totals are 82, 92 and 110.

   What is the **largest number** (number on card A)?

   Largest number = _______

(4 marks)

**END OF PAPER**