FORM 2 MATHEMATICS SCHEME A Non Calculator Paper TIME: 30 minutes

Name: _______________________________ Class: _______________

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark</td>
<td></td>
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</tbody>
</table>

Instructions to Candidates

- Answer all questions.
- This paper carries a total of 25 marks.
- Calculators and protractors are NOT ALLOWED.
1. These bathroom scales are showing a person’s weight in kilograms. Write down the weight shown.

Ans: ________kg

__________________________

(1 mark)

2. This triangular shape is drawn to scale on squared paper. Make a rough estimate of:

(a) the base of the triangle.

Ans:_______km

(b) the height of the triangle.

Ans:_______km

(c) the area of the triangle.

Ans:_______km²

__________________________

(3 marks)

3. Match by drawing arrows:

\[
\begin{align*}
\frac{3}{8} & : 0.428571 \\
\frac{5}{3} & : 0.6 \\
\frac{3}{5} & : 0.375
\end{align*}
\]

__________________________

(1 mark)
4. (a) Work out:
   (i) $6 + 8 \times 8 = _______ $ (ii) $17 - (-23) = ______$

   (b) On the same day, the temperature in Berlin was exactly **half way** between the temperatures in Rome and Moscow. **Complete** the table below.

<table>
<thead>
<tr>
<th>Rome</th>
<th>Berlin</th>
<th>Moscow</th>
</tr>
</thead>
<tbody>
<tr>
<td>8°C</td>
<td></td>
<td>-18°C</td>
</tr>
</tbody>
</table>

   (4 marks)

5. (a) Write $3\frac{2}{7}$ as an **improper fraction**.

   Ans:_____

   (b) Work out: 
   (i) $\frac{1}{2} + \frac{2}{5}$ (ii) $1\frac{7}{8} - \frac{3}{4}$

   Ans:______       Ans:______

   (5 marks)

6. (a) An elastic band, 20 cm long can stretch by 50%. What is the **stretched length**?

   Ans: ________cm

   (b) Brian scored $\frac{17}{20}$ in a test. Convert Brian’s mark into a **percentage**.

   Ans: _______%

   (c) Bronze is an alloy made of three different metals. 57% is Copper, 40% is Zinc and the rest is Lead. A bronze statue weighs 1000 kg. How much of it, in kg, is **Lead**?

   Ans: ________kg

   (4 marks)
7. (a) Write down the first four multiples of 23.

Ans: _____, _____, _____, _____.

(b) Write 72 as a product of its prime factors.

Ans: 72 = ________________.

(c) A bus leaves the airport for Valletta every 45 minutes and a helicopter leaves the airport for Gozo every 120 minutes. If they both leave the airport at 06:00, what is the next time that the bus and helicopter leave together again?

Ans: __________

________________________________________(7 marks)

END OF PAPER
1. Use your calculator to work out the following:

(a) \( \left( \frac{3}{5} + \frac{1}{9} \right) \times \left( \frac{3}{4} - \frac{1}{8} \right) \)

Ans: ______

(b) \( \frac{3}{5} \) of €950

Ans: €______

(c) \( 4.96^3 \) Correct to 2 decimal places.

Ans: ______

______________________________________________(5 marks)

2. A cereal mixture contains rice, wheat and corn in the ratio 2 : 3 : 5.
   A bag of this cereal mixture contains 80 g of rice.
   (a) How much corn does it contain?

   Ans: ________ g

   (b) Calculate the weight of the bag.

   Ans: ________ g

______________________________________________(6 marks)
3. This is a sequence of shapes made up of dots and lines.

Stage 1  
Stage 2  
Stage 3  

(a) Complete the table to show the number of dots and the number of lines in each shape.

<table>
<thead>
<tr>
<th>Stage</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of dots</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of lines</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) How many dots are there in stage 8?

Ans: __________

(c) Which stage will contain 28 lines?

Ans: __________

______________________________ (5 marks)

4. (a) Underline the correct word:

The kite has (reflective, rotational) symmetry.

(b) Draw at least 4 more of the kite on the grid to show that it can tessellate.

(c) (i) Use your ruler to measure the base and height of this parallelogram.

Ans: base = ______ cm; height = ______ cm

(ii) Use your measurements to find the area of the parallelogram.

Ans: __________ cm²
(d) This solid is made up of three cuboids. Calculate its volume.

\[
\begin{align*}
&\text{30 cm} \\
&\text{60 cm} \\
&\text{110 cm} \\
&\text{50 cm} \\
&\text{32 cm} \\
&\text{120 cm}
\end{align*}
\]

Ans: _______cm³

(11 marks)

5. (a) Simplify: \(4a + 3a - 2a\)

Ans: _______

(b) Expand: \(7(3y - 5)\)

Ans: __________

(c) Factorise: \(4k + 14\)

Ans: __________

(d) Solve the equation: \(12 + 3x = 27\)

Ans: \(x = _______\)

(e) Judith spends €1.22 at the greengrocer. She buys 6 oranges and 8 apples. The oranges cost 7c each.

(i) Write an equation showing this information. Use \(x\) for the cost of an apple in cent.

Ans: __________________

(ii) Solve your equation to find the cost of an apple.

Ans: \(x = _______\)
6. Clive sits for 7 examinations and scores the following marks:

   68, 60, 23, 65, 67, 72, 72.

(a) What is the **median** mark?

   Ans: median = _____

(b) Calculate the **mean** mark.

   Ans: mean = _____

(c) What is the **mode**?

   Ans: mode = _____

(d) (i) Underline the correct word: The (median, mean, mode) **best represents** all of Clive’s marks.

   (ii) Give a reason for your answer.

   __________________________________________________________

   __________________________________________________________(8 marks)

7. A survey on all the classes at a school is carried out to find the number of left-handed students in each class. The frequency table below shows the results.

<table>
<thead>
<tr>
<th>Number of left-handed students</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency (Number of classes)</td>
<td>2</td>
<td>3</td>
<td>12</td>
<td>9</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

(a) **How many classes** have 3 left-handed students?

   Ans: ____________

(b) A class is selected at random. What is the **probability** that it has one left-handed student?

   Ans: ____________

(c) Calculate the number of left-handed students **in the school**.

   Ans: ____________

   __________________________________________________________(4 marks)
8. The diagram shows the positions of three boats A, B and C.
(a) Calculate the angle marked \( x \).

\[ x = \ldots \]

(b) Calculate the angle marked \( y \).

\[ y = \ldots \]

(c) What is the bearing of B from A?

\[ \ldots \]

(d) What is the bearing of B from C?

\[ \ldots \]

---

9. (a) Reflect point A in the y axis. Label this point B.

(b) Rotate point A 180° about the origin O. Label this point C.

(c) Translate point A, 3 right and 8 down. Label this point D.

(d) Join ABCD and write down the name of the quadrilateral ABCD.

\[ \text{Ans: } \ldots \]
10. This graph is a conversion graph for gallons and litres.

Use this graph to:

(a) Convert **20 litres** into gallons correct to 1 decimal place.

Ans: ________gallons

(b) Convert **7 gallons** into litres correct to the nearest litre.

Ans: ________litres

(c) Use your answer in (b) to convert **35 gallons** into litres.

Ans: ________litres

__________________________________________________________________

(4 marks)
11. (a) Use **ruler and compasses only** to:

(i) Construct the **perpendicular** from point P to the line QR to meet QR at S.

(ii) Construct the **bisector** of \( \angle SPR \) to meet QR at T.

![Diagram with points P, Q, R and line SRT]

(b) 

(i) Mark the **angle of elevation** of P from T on your diagram.

(ii) Use your **protractor** to measure the **angle of elevation** of P from T.

\[ \text{Ans: } _______ \]

_________________________________________________________________________________(6 marks)
12. (a) Complete the table for \( y = 2x + 1 \).

\[
\begin{array}{c|ccccc}
    & \multicolumn{4}{c|}{x} \\
\hline
    & -2 & -1 & 0 & 1 & 2 \\
2x  & -2 &   &   & 4 &   \\
+1  &   & +1 & +1 & &   \\
y   & -1 &   &   & 5 &   \\
\end{array}
\]

(b) Draw the graph of \( y = 2x + 1 \) on the grid below.

(c) Calculate the gradient of the graph.

Ans: ________

__________________________________________________________________________

(6 marks)

END OF PAPER