INSTRUCTIONS TO CANDIDATES

- Answer ALL questions.
- This paper carries a total of 25 marks.
- Calculators and protractors are NOT ALLOWED.
1. a) Work out: \(1849 + 357\)

\[
\text{Ans: } ________
\]

b) Calculate: \(23 \times 12\)

\[
\text{Ans: } ________
\]

c) Work out: \(110 \div 4\).

\[
\text{Ans: } ________
\]

\[
\text{____________________________________}
\]

\[
\text{______________________________}
\]

\[
(3 \text{ marks})
\]

2. Complete the following sequences.

a) \(1, 4, 7, 10, ______, ______\).

\[
\text{____________________________________}
\]

\[
\text{______________________________}
\]

\[
(2 \text{ marks})
\]

b) \(\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, ______, ______\).

\[
\text{____________________________________}
\]

\[
(2 \text{ marks})
\]

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

\[
\text{Ans: } ________
\]

b) Solve: \(2 = 12 - 2x\)

\[
\text{Ans: } ________
\]

\[
(3 \text{ marks})
\]

4. a) Fill in: \(\frac{3}{7} = \frac{21}{\underline{\phantom{000}}\phantom{0}}\)

\[
\text{Ans: } ________
\]

b) Work out: \(\frac{2}{5} + \frac{1}{4}\)

\[
\text{Ans: } ________
\]

\[
(3 \text{ marks})
\]
5. Triangles $ABC$ and $DEF$ are similar. Work out the length of side $BC$.

\[
\begin{align*}
A & \quad 15 \text{ cm} \\
B & \quad C \\
9 \text{ cm} \\
\end{align*}
\]

\[
\begin{align*}
D & \quad 5 \text{ cm} \\
E & \quad F \\
3 \text{ cm} & \quad 2.5 \text{ cm}
\end{align*}
\]

Ans: __________

__________________________________________________________________________ (3 marks)

6. Fill in the missing coordinates of the points shown on the line $PT$.

\[
\begin{align*}
P &= (0, 5) \\
Q &= (\quad , \quad) \\
R &= (\quad , \quad) \\
S &= (\quad , \quad) \\
T &= (5, 0)
\end{align*}
\]

_________________________________________ (3 marks)

7. a) Write $\frac{7}{25}$ as a percentage.

Ans: ________

b) Work out $5\%$ of €40.

Ans: ________

_________________________________________ (3 marks)
8. a) A new washing soap is sold in boxes, as shown. What is the volume of the box?

```
30 cm

15 cm
```

Ans: _______

b) The measurements of various packets of washing soap are written in an excel sheet. What formula should be written in cell D2 to find the volume?

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L</td>
<td>B</td>
<td>H</td>
<td>Volume</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>5</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

Ans: ______________________________ (3 marks)

9. Change the following:

a) 1 h 20 min = _______ minutes

b) 8950 grams = _______ kg

_________________________________________ (2 marks)

END OF PAPER
1. a) Factorise: $3xy + 9z$

   Ans: ________

b) Expand: $8(a^2 + ab)$

   Ans: ________

c) Write $(5 \times 10^3)$ as an ordinary number.

   Ans: ________

   (3 marks)

2. a) Simplify: $18 : 36 : 24$

   Ans: ________

b) Francesco reads 8 pages a day and he will finish reading a book in 20 days.

   i) How many pages are there in the book?

   Ans: ________

   ii) How long will it take him to read the same book when he reads 5 pages a day?

   Ans: ________

   (3 marks)
3. A coin and a 5 sided spinner are tossed together.

   a) Complete the possibility space.

<table>
<thead>
<tr>
<th>Coin</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head (H)</td>
<td>H,1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tail (T)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   b) What is the probability of getting a Tail and a 5? Ans: ________

c) What is the probability of getting a Head and an even number? Ans: ________

(5 marks)

4. a) Work out the area of rectangle ABCD.

   Ans: ________

b) Work out the area of triangle BCY.

   Ans: ________

c) Calculate the area of the shaded part.

   Ans: ________

(6 marks)
5. a) Julia wants to raise money to buy an MP3 player by selling handmade cards at €1.50 each. The MP3 player costs €114. How many cards must she sell?

Ans: ________

b) A laptop costs €530 excluding VAT. What is the cost of the laptop when 18% VAT is added?

Ans: ________
______________________________________ (5 marks)

6. a)

<table>
<thead>
<tr>
<th>Question</th>
<th>Expression</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Simplify if possible</td>
<td>$5a + 2a$</td>
<td></td>
</tr>
<tr>
<td>ii) Simplify if possible</td>
<td>$3p - q$</td>
<td></td>
</tr>
<tr>
<td>iii) Expand</td>
<td>$4(2x + 5)$</td>
<td></td>
</tr>
<tr>
<td>iv) Expand</td>
<td>$2(3a^2)$</td>
<td></td>
</tr>
</tbody>
</table>

b) i) $V = \frac{q + r}{p}$. Work out the value of $V$ when $p = 2$, $q = 3$ and $r = 6$.

Ans: ________

ii) $V = \frac{q + r}{p}$. Make $r$ the subject of the formula.

Ans: ________
______________________________________ (8 marks)
7. a) The graph shows the distance in km, travelled by a car on a highway, against time in minutes.
   i) Work out the **gradient** of the graph. 
   Ans: _______

   ii) Find the **time** taken to travel 42 km. 
   Ans: _______

b) A group of athletes covered the following distances in km.

   13, 16, 17, 11, 14, 13, 16, 12, 15, 18, 14, 17, 19.

   i) How **many** athletes took part? 
   Ans: _______

   ii) What was the **mean** distance covered?

   Ans: _______

   ______________________________________________________________________
   (7 marks)
8. a) What is the name of a six sided polygon?  
   Ans: ______________

   b) Calculate the sum of the interior angles of a six sided polygon.

   Ans: _______

   c) What is the size of each interior angle of a regular six sided polygon?

   Ans: _______

   d) Fill in the logo program that draws the regular polygon shown of side 50 units.

   PD
   REPEAT ____ [ FD _____ RT 60]

   (6 marks)

9. a) Reflect shape A in the x axis and label it B.

   b) Translate shape A, 2 to the right and 4 up and label it C.

   c) Rotate shape A 90º anticlockwise about (0,0) and label it D.

   (6 marks)
10. The clock on a church has a shape of a circle with radius 2.7 metres.

   a) The tip of the minute hand touches the circumference of the clock face. How far does the tip of the minute hand travel in one hour? Give your answer correct to 2 decimal places.

   Ans: ________

   b) What is the area of the clock face? Give your answer correct to 1 decimal place.

   Ans: ________

   __________________________________________________________ (6 marks)

11. a) Complete the table for $y = 2x - 2$.

   $\begin{array}{|c|c|c|c|c|c|c|}
   \hline
   x & -3 & -2 & -1 & 0 & 1 & 2 & 3 \\
   \hline
   2x & -6 & -2 & 0 & 0 & 6 & & \\ 
   -2 & -2 & -2 & -2 & -2 & & -2 \\
   y & -8 & -4 & -2 & -2 & 4 & & \\
   \hline
   \end{array}$

   b) Draw the graph of $y = 2x - 2$, using a scale of 2 cm = 1 unit on both axes.

   c) From your graph, find
   i) the $y$ intercept Ans: ________
   ii) the value of $y$ when $x = 1.5$ Ans: ________

   __________________________________________________________ (7 marks)
y

x
12. The pie chart shows the sales of ice cream during a school activity. The total number of ice creams sold was 600.

   ![Pie Chart]

   a) What **fraction** of the ice creams sold was chocolate? _______

   b) How many chocolate ice creams were sold? _______

   c) Fill in the frequency table below.

<table>
<thead>
<tr>
<th>Flavour</th>
<th>Chocolate</th>
<th>Vanilla</th>
<th>Strawberry</th>
<th>Mint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td></td>
<td>200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

________________________________________________________________________ (6 marks)

13. Use ruler and compasses only to draw triangle ABC in which $\angle CAB = 60^\circ$, $\angle CBA = 90^\circ$ and AB = 5 cm.
   **Measure** the length of the sides AC and BC.

   ![Triangle ABC]

   AC = _______ cm

   BC = _______ cm

________________________________________________________________________ (7 marks)