Instructions to Candidates

- Answer all questions.
- This paper carries a total of 25 marks.
- Calculators and protractors are not allowed.
1. Place the following four numbers in order of size, the smallest first.

\[ 500 \times 1000 \quad 56000 \quad 10^2 \quad 1 \text{ million} \]

2. Mario wants to share €465 equally between 15 people. How much does each person get?

3. Change \( \frac{22}{1000} \) to a decimal number.

4. (a) Work out \( \frac{7}{12} + \frac{1}{12} \) and give your answer to its lowest term.

(b) Write in its simplest form \( 2 \text{ m} : 50 \text{ cm} \)
5. A bag of potatoes weighs **60 kg**.

Mary carries \(\frac{1}{5}\) of it, and Jane carries 50% of it.

(a) How much weight is **Mary** carrying? 

__________________

(b) How much weight is **Jane** carrying?

__________________

(c) Who is carrying more weight?

__________________

(d) How much more is she carrying?

__________________

(5 marks)

6. Jonathan has these **seven** number cards:

\[
\begin{array}{cccc}
-10 & 4 & -8 & -3 \\
10 & 9 & & \\
\end{array}
\]

Choose a card so that

(a) \(\_\) + 10 = 0

(b) \(\_\) - -8 = 12

(c) 9 + \(\_\) = -1

(d) 9 - \(\_\) = 10

Write your answers above in the blank cards.

(4 marks)
7. **Round** each number to the nearest whole number and then **work out** the approximate answer.

The first one is done for you.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Nearest whole number</th>
<th>Approximate answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) $6.3 \times 4.51 + 2.9$</td>
<td>$6 \times 5 + 3$</td>
<td>33</td>
</tr>
<tr>
<td>(b) $8.1 + 6.68$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) $25.33 \times 1.8$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(4 marks)
1. I left home at 22:30 to spend the night fishing.

I returned home 5 hours 30 minutes later.

(a) At what time did I return?

______________________

(b) Show this time on the cuckoo clock.
2. A toy is packed in a box.
   The box is **5 cm** long, **5 cm** high and **8 cm** wide.
   
   (a) What is the **volume** of the box in cm³?

   ____________________

   The boxes are packed in a large wooden crate.
   It can contain exactly **80** toy boxes.
   
   (b) What is the **volume** of the inside of the crate in cm³?

   ____________________

   Each toy box weighs **0.5 kg**.
   The wooden crate weighs **4 kg** when empty.
   
   (c) What is the **total** weight in kg of the crate when full of toy boxes?

   ____________________

   (7 marks)

3. Work out the **area** of shape ABCDE.
   Each square in the grid is **1 cm²**.

   ____________________

   (5 marks)
4. From this tombola card,

\[
\begin{array}{cccccc}
11 & 25 & 40 & 64 & 72 & 81 \\
5 & 27 & 31 & 54 & & \\
13 & 38 & 58 & 68 & 87 & \\
\end{array}
\]

(a) list two prime numbers.  
_________  _______

(b) list two multiples of 3.  
_________  _______

(c) list two square numbers.  
_________  _______

(d) find a number and its square root.  
_________  _______

(4 marks)

5. Write in order the smallest first:

0.3  0.13  3.0001  0.33

(2 marks)

6. Continue writing the LOGO commands below to draw the shape on the left. ‘t.s.’ means ‘turtle steps’.

PD
FD 80
RT

(3 marks)
7. This **function machine** doubles the input \( I \) and then adds one, to obtain output \( P \).

\[
\begin{array}{c}
\text{Input} \\
I \\
\end{array} \quad \begin{array}{c}
\times 2 \\
\end{array} \quad \begin{array}{c}
\text{Output} \\
P \\
\end{array}
\]

Fill in:

\[
\begin{array}{c|c}
\text{Input} & \times 2 & \text{Output} \\
4 & +1 \\
\end{array}
\]

\[
\begin{array}{c|c}
\text{Input} & \times 2 & \text{Output} \\
\text{ } & +1 & 7 \\
\end{array}
\]

(c) When \( I = 0 \), \( P = \) __________.

(d) When \( I = \) __________, \( P = 10 \).

8. Line **PQ** is a line of symmetry.

(a) Draw the rest of the shape.

(b) Draw all the lines of symmetry of the completed shape.

(c) Write down the order of rotational symmetry of the completed shape.

\[
\begin{array}{c|c|c|c|c|c|c|c|c}
11 & 12 & 10 & 12 & 9 & 11 & 12 & 10 & 9 & 12 \\
\end{array}
\]

9. **Ten** students go to an art exhibition. Their ages are as follows:

(a) What is the **mode** of their ages? ______________________

(b) What is the **range** of their ages? ______________________

(c) Work out the **mean** of their ages.

______________________

(4 marks)

(4 marks)

(6 marks)
10. Write the volume of liquid in these test tubes:
   (a) Test tube A ______________________
   (b) Test tube B ______________________
   (c) Test tube C ______________________
   (3 marks)

11. (a) Simplify (tidy up): \(5x - 3y - 2x + 5y\)

   ______________________

(b) When \(r = 4\) and \(s = 5\), what is the value of: \(3r - s + 3\)?

   ______________________

(c) On one side of the scales there is a packet \(\text{P}\).

<table>
<thead>
<tr>
<th>P</th>
<th>4 g</th>
<th>(\text{P})</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 g</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   (i) Write down the equation for this set of scales. ______________________

   (ii) Calculate how much the packet \(\text{P}\) weighs, by solving the equation.

   ______________________

   (8 marks)
12. These patterns are made up of black and white squares.

Complete this table. You have four answers to fill in.

<table>
<thead>
<tr>
<th></th>
<th>1st pattern</th>
<th>2nd pattern</th>
<th>3rd pattern</th>
<th>5th pattern</th>
<th>10th pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>White squares</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black squares</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Total of squares</td>
<td>5</td>
<td>8</td>
<td>11</td>
<td>17</td>
<td></td>
</tr>
</tbody>
</table>

(4 marks)

13. Look carefully at the diagram.

Work out the missing angles.

(a) \( n = \) _______°
(b) \( p = \) _______°
(c) \( q = \) _______°
(d) \( r = \) _______°
(e) \( s = \) _______°

(5 marks)


Work out the probability that he scores:

(a) an even number.  

(b) a number greater than 4.  

(c) a seven.  

(3 marks)
15. (a) **Plot** the following:

A (4, – 1)  B (4, – 4)

C (8, – 5)  D (8, – 1)

(b) **Join** AB, BC, CD and DA.

(c) **Complete:**

The shape I have drawn is the [shape here] of shape P

in the [axis] axis.

Choose: *reflection, translation, x, y*

(d) **Translate** shape P, 10 to the left and 6 down.

16. The pie chart represents the number of men, women and children that went to a party. There were 120 people in all.

(a) **Complete the following:**

The number of

men was ________________.

women was ________________.

children was ________________.

(b) **Draw a bar chart to show this information.**

(b) [Bar chart diagram]
17. (a) Make an **accurate** drawing of this triangle.

(b) Measure the length of BC from your drawing.

\[ BC = \text{___________} \]