Instructions to Candidates

Answer all questions.
This paper carries a total of 25 marks.
Calculators and protractors are not allowed.
1 Work out the following:

a) \[ \begin{array}{cc}
4 & 4 \\
+ & 3 \ 5 \\
\hline
\end{array} \]

\[ \begin{array}{cc}
3 & 8 \\
\hline
\end{array} \]

_______

b) \[ \begin{array}{cc}
7 & 3 \\
\hline
\end{array} \]

\[ \begin{array}{cc}
- & 5 \ 4 \\
\hline
\end{array} \]

_______

c) \[ 7 - 9 = _______ \]

(2 marks)

2 Solve these equations:

a) \[ x - 5 = 7 \]

\[ x = _______ \]

b) \[ n \div 6 = 8 \]

\[ n = _______ \]

c) \[ 9y = 45 \]

\[ y = _______ \]

(3 marks)

3 In a lottery, a total of 100 tickets were sold. John bought 5 tickets and Jane did not buy any tickets. What is the probability that:

a) John wins the prize?

\[ \frac{5}{100} = _______ \]

b) Jane wins the prize?

\[ \frac{0}{100} = _______ \]

(2 marks)

4 Given that \[ v = u + 10t \], find the value of \[ v \] when \[ u = 20 \] and \[ t = 1.5 \].

\[ v = _______ \]

(2 marks)
5 Tom was using some squares to make the patterns shown below. 

a) Draw **Pattern 4**.

\[ \text{Pattern 1} \quad \text{Pattern 2} \quad \text{Pattern 3} \quad \text{Pattern 4} \]

b) Complete the table:

<table>
<thead>
<tr>
<th>Pattern Number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of squares</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(3 marks)

6 Work out the following, simplifying your answer where possible:

a) \( \frac{7}{9} - \frac{5}{9} = \)

b) \( \frac{7}{11} + \frac{4}{11} = \)

c) \( \frac{1}{3} \times 765 = \)

(4 marks)

7 Find the mean (average) of the following numbers:

\[ 5, \quad 11.4, \quad 8.6, \quad 4, \quad 6, \quad 7, \quad 6.2, \quad 4.8, \quad 9, \quad 8. \]

(2 marks)
8 Fill in the blanks. (The first one is done for you.)

\[
\begin{align*}
257 \text{ cm} &= 2.57 \text{ m} \\
45 \text{ cm} &= \underline{\phantom{0}} \text{ m} \\
\underline{\phantom{0}} \text{ m} &= 2.6 \text{ km} \\
4350 \text{ g} &= \underline{\phantom{0}} \text{ kg} \\
\underline{\phantom{0}} \text{ g} &= 1.8 \text{ kg}
\end{align*}
\]

(3 marks)

9 How many degrees are there:

a) turning clockwise from North to South-east ?

\[
\begin{align*}
\circ \\
\underline{\phantom{0}}
\end{align*}
\]

b) turning clockwise from North-west to North-east?

\[
\begin{align*}
\circ \\
\underline{\phantom{0}}
\end{align*}
\]

(2 marks)

10 Work out : a) 25\% of 80

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

b) 50\% of 76

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

(2 marks)

End of Paper
1a) Work out:

i) \[234.4 + 197.6\]

ii) \[27.8 - 15.8\]

b) Evaluate \[
\frac{234.4 + 197.6}{27.8 - 15.8}
\]

c) Fill in the missing number:

\[36 = \square^2\]
John cycled from his house to Ann’s house, 21km away. John left his house at 10 am and on his way, he stopped at a supermarket. The travel graph below shows part of John’s journey.

a) At what time did John arrive at Ann’s house?  

b) How long did John stay at the supermarket?  

c) John left Ann’s house at 1 pm and took 2 hours to get back to his house.  
i) Draw a straight line on the graph to show John’s journey on his way back home.  
 ii) How many hours was John away from home?

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3 Divide €931 between Jack and Jill in the ratio 2 : 5.

Jack: €

Jill: €

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(5 marks)
4 Maria has a rectangular piece of cardboard. This is 20 cm long and 18.5 cm wide. She wants to cut out the rectangle A.

a) Calculate the area of the whole cardboard.

\[ \text{cm}^2 \]

b) What is the area of rectangle A?

\[ \text{cm}^2 \]

c) What is the area of the shaded part?

\[ \text{cm}^2 \]

(6 marks)

5 In rectangle ABCD, AD = 10 cm. E is a point on BC such that AE = 10 cm; angle ADE = 75°.

a) Fill in the blanks:
   Triangle DAE is called an \__________ triangle
   because 2 of its sides are \__________.

b) find the size of:
   i) angle \( x \)
      \[ x = \text{\__________} \]
   ii) angle \( y \)

\[ y = \text{\__________} \]
   iii) angle \( z \)

\[ z = \text{\__________} \]

(8 marks)
6  a) Use the number machine to complete the table below:

\[
\text{input (} x \text{) } \rightarrow \times 3 \rightarrow \text{output (} y \text{)}
\]

<table>
<thead>
<tr>
<th>(x)</th>
<th>0</th>
<th>1</th>
<th>3</th>
<th>5</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>(y)</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b) Use your table to draw the graph of \( y = 3x \).

7  A group of 200 students were asked what hobby they have. The Pie chart shows the results of this survey.

a) How many students prefer sports?

\[\text{__________}\]

b) Fifty students prefer reading. What is the size of angle \(x\)?

\[x = \text{__________}\]

\[\circ\]

c) The number of students who prefer dancing is equal to the number of students who have other hobbies. How many students have other hobbies?

\[\text{__________}\]

(8 marks)
8 a) A square has rotational symmetry of order _________.

b) On the grid provided plot and label the following points:
A (0, 10)  B (1, 7)  C (4, 7)  D (2, 5)  E (3, 2)  F (0, 4)
Join A to B, B to C, C to D and so on.

c) Using the y axis as the line of symmetry, draw the image of shape ABCDEF.

9 On the given line mark point B such that AB = 10 cm.
At A draw line AC such that angle A = 45° and AC = 7 cm. Join BC and measure angle C.

Angle C = _________°

(11 marks)
10 a) What number is the arrow pointing to on the two scales below?

i)  

ii)  

b) i) Round 783 correct to the nearest 10  

ii) Round 1876 correct to the nearest 100  

(4 marks)

11 The diagram represents a rectangular brick that is 20 cm wide, 15.5 cm high and 50 cm long.

a) Calculate the volume of the brick.

b) If each brick weighs 31.4 kg, calculate the weight of 130 similar bricks.  

(4 marks)
Paul wants to draw the shape shown using LOGO. The total length of the 3 sides is 420 turtle steps (ts), and each vertical side is 100 turtle steps long.

a) Work out the value of $x$.

\[ x = \text{__________ ts} \]

b) Fill in the blanks in this set of commands so that the turtle draws the diagram shown above:

\[ \text{PD FD 100 RT 90 FD ________ RT ________ FD ________} \]

(6 marks)

END OF PAPER