Instructions to Candidates:

- Calculators may **not** be used
- Attempt all questions
- Show ALL working
- Check your answers for accuracy
- Total marks for this paper = 80
1. (a) Write a number in each box so that each calculation is correct.

\[
\begin{align*}
(i) & \quad + 249 = 361 \\
(ii) & \quad \times 11 = 176 \\
(iii) & \quad \div 9 = 153 \\
(iv) & \quad + 5^2 = 31
\end{align*}
\]

(b) Here are four cards. Each card has a number on it.

These four cards are arranged to make the number 5732

(i) Ben chooses three of the cards to make the **smallest** possible number.

Which three cards did Ben choose?

(ii) Arrange the **three cards Ben chose in (i)** to make the **largest** possible **odd** number.
2. (a) 

(i) What fraction of this shape is shaded?
Give your fraction in its simplest form.

...........................................................

(ii) Write your answer to part (i) as a decimal.

........................................................... (3)

(b) 

(i) Shade 20% of this shape.

(ii) What percentage of the shape is unshaded?

...........................................................% (2)
3.

(a)

(i) Work out the size of angle $w$.

............................................................°

(ii) Give a reason for your answer.

..........................................................................................................................

(b)

JKL and MKN are straight lines.

(i) Find the size of angle $x$.

.................................................................................................°

(ii) Find the size of angle $y$.

.................................................................................................° (3)
4. Calculate the following. Show your working clearly

   a) \(34907 + 3057\)  
   b) \(21072 - 356\)

   ........................................     ........................................ 

   c) \(47 \times 36\)  
   d) \(182266 \div 7\)

   ........................................     ........................................  (8)

5. Change the following to the units indicated

   a) \(16 \text{ m} = \text{ cm}\)  
   d) \(145\text{ mm} = \text{ cm}\)

   b) \(5\text{ km} = \text{ m}\)  
   e) \(45000\text{ g} = \text{ kg}\)

   c) \(2\text{ km} = \text{ cm}\)  (5)
6. Here are the first five terms of a number sequence.

\[ \begin{array}{ccccc}
2 & 6 & 18 & 54 & 162 \\
\end{array} \]

(a) Work out the next term of the sequence.

...........................................................(2)

(b) Explain how you worked out your answer.

....................................................................................................................
...........................................................................................(1)

7. (a) Write down the value of the 3 in the number 7.432

...........................................................(1)

(b) Round 7.482 to the nearest whole number.

...........................................................(1)

(c) Write down the number which is exactly halfway between 0.7 and 0.8

...........................................................(1)

(d) Write these numbers in order of size.

Start with the smallest number.

\[ \begin{array}{ccccc}
0.14 & 0.35 & 0.4 & 0.07 & 0.306 \\
\end{array} \]

..........................................................................................................................(2)

(e) Write 0.31 as a fraction.

.............................................................

(1)
The diagram shows a shape. It is made from a triangle on the side of a rectangle. Showing your working:

a) Work out the perimeter of the whole shape. (Include the correct units)

........................................................... (2)

b) Work out the area of the shape. (Include the correct units)

........................................................... (2)

9.

From the numbers in the box, write down

(i) a multiple of 9 ............................................

(ii) a factor of 90 ............................................

(iii) a square number ........................................

(iv) a prime number ........................................

(v) a number that is a multiple of both 4 and 7 ........................................ (5)
10. The table shows midday temperatures in four cities on one day in winter.

<table>
<thead>
<tr>
<th>City</th>
<th>Midday temperature (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paris</td>
<td>2</td>
</tr>
<tr>
<td>Cardiff</td>
<td>–5</td>
</tr>
<tr>
<td>London</td>
<td>–3</td>
</tr>
<tr>
<td>Edinburgh</td>
<td>–1</td>
</tr>
</tbody>
</table>

(a) Which city had the lowest midday temperature?

...........................................................................................................°C (1)

By midnight, the temperature in London had fallen by 5°C.
(b) Work out the midnight temperature in London.

...........................................................................................................°C (2)

(c) What was the difference between the midday temperatures of Paris and Edinburgh?

...........................................................................................................°C (2)

11. (a) Here is a list of four numbers.

   1   3   4   7

Choosing numbers from the list, write a different number in each box to make the calculation correct.

	× 2 =

...........................................................................................................°C (2)

(b) Explain why the calculation can never be correct if the list is

   1   3   5   7

...........................................................................................................°C (1)
12. Here are nine road signs.

a) Shape A has 3 equal sides. What is the name for this type of triangle

........................................... (1)

b) Shape B has 8 sides. What is the mathematical name for this shape?

.........................................(1)

c) Write down all the signs that have exactly 3 lines of symmetry.

.................................................................(2)

13. There are 20 sweets in a bag. 12 of the sweets are toffees. Work out the percentage of the sweets that are not toffees. Show your working

.................................................................(3)
14. Vicky counts the number of birds in her garden at 8 am on each of 10 days.

5 3 3 2 0 2 4 2 4 15

(a) Write down the mode. ........................................................... (2)

(b) Work out the range .......................................................... (1)

(c) Work out the mean. .................................................................(2)

15. Lisa got on a bus at 08 45  and Lisa got off the bus at 10 20

(a) Write down the time shown on the clock.

........................................................................................................(1)

(b) How long was Lisa on the bus?

........................................................................................................ (2)
16 a) Alice is travelling from home to school on her bicycle, a distance of 3km. She cycles at 9km/hr. How long will it take her to get to school?

.......................... (2)

b) On her way home from school she is slower and travels at 8km/hr. After 15 minutes she stops at a sweet shop. How far from home is the sweet shop?

.......................... (2)

17. Here is a right-angled triangle.

The shape below is made from 4 of these triangles.

Work out the perimeter of the shape.

..........................(3)

END OF EXAM – 80 marks – now check your work