Mathematics test

Paper 1
Calculator not allowed

Please read this page, but do not open your booklet until your teacher tells you to start. Write your name and the name of your school in the spaces below.

First name ________________________________
Last name ________________________________
School ________________________________

Remember

- The test is 1 hour long.
- You must not use a calculator for any question in this test.
- You will need: pen, pencil, rubber, ruler and tracing paper (optional).
- This test starts with easier questions.
- Try to answer all the questions.
- Write all your answers and working on the test paper – do not use any rough paper. Marks may be awarded for working.
- Check your work carefully.
- Ask your teacher if you are not sure what to do.

For marker's use only
Total marks
Instructions

Answers
This means write down your answer or show your working and write down your answer.

Calculators
You must not use a calculator to answer any question in this test.
1. The table shows the average heights of boys and girls of different ages.

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Average height for boys (cm)</th>
<th>Average height for girls (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>122</td>
<td>121</td>
</tr>
<tr>
<td>9</td>
<td>134</td>
<td>133</td>
</tr>
<tr>
<td>11</td>
<td>143</td>
<td>144</td>
</tr>
<tr>
<td>13</td>
<td>155</td>
<td>155</td>
</tr>
<tr>
<td>15</td>
<td>169</td>
<td>162</td>
</tr>
</tbody>
</table>

(a) What is the average height for girls aged 9 years old?

........................ cm

1 mark

(b) A boy and a girl are both 15 years old.

Their heights are average for their age.

How much taller is the boy than the girl?

........................ cm

1 mark
2. Write numbers in the boxes to make correct calculations. 
You must use **different numbers** each time.

\[
\begin{align*}
\square \times \square &= 24 \\
\square \times \square &= 24 \\
\square \times \square &= 24
\end{align*}
\]

2 marks

3. (a) Write a number that is **bigger than one thousand** but **smaller than one thousand one hundred**.
Write the number in figures not words.

\[
\begin{array}{c}
\square \\
\end{array}
\]

1 mark

(b) Now write a **decimal** number that is **bigger than zero** but **smaller than one**.

\[
\begin{array}{c}
\square \\
\end{array}
\]

1 mark
4. Look at the diagrams showing 3-D shapes.

(a) One of the shapes has one square face and four triangular faces. Write the letter of this shape.

(b) Two of the shapes have six faces. Write the letters of these shapes.

(c) Now look at this diagram showing another 3-D shape. How many faces does the shape have?

1 mark
5. (a) You can make six different numbers using these three digit cards:

\[
\begin{array}{ccc}
3 & 5 & 7
\end{array}
\]

Complete the list to show the six different numbers.

\[
\begin{array}{c}
357 \\
375 \\
\text{ } \\
\text{ } \\
\text{ } \\
\text{ }
\end{array}
\]

(b) From the list, write down the **smallest** number and the **biggest** number, then add them together.
6. Without reflections or rotations, three squares can join side-to-side to make only two different shapes.

```
+---+---+---+
|   |   |   |
+---+---+---+
|   |   |   |
+---+---+---+
```

Without reflections or rotations, four squares can join side-to-side to make only five different shapes.

Complete the five different shapes on the grid below. The first one is done for you.

```
+---+---+---+---+
|   |   |   |   |
+---+---+---+---+
|   |   |   |   |
+---+---+---+---+
|   |   |   |   |
+---+---+---+---+
```

3 marks
7. Here are the prices of food and drinks in a café.

<table>
<thead>
<tr>
<th>Food</th>
<th>Drinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pizza</td>
<td>£1.40</td>
</tr>
<tr>
<td>Burger</td>
<td>95p</td>
</tr>
<tr>
<td>Sandwich</td>
<td>£1.20</td>
</tr>
<tr>
<td>Toast</td>
<td>90p</td>
</tr>
<tr>
<td>Tea</td>
<td>65p</td>
</tr>
<tr>
<td>Coffee</td>
<td>90p</td>
</tr>
<tr>
<td>Cola</td>
<td>80p</td>
</tr>
<tr>
<td>Juice</td>
<td>£1.00</td>
</tr>
</tbody>
</table>

(a) Sally wants to buy one item of food and one drink. What is the least amount of money she can pay?

(b) Lee buys one item of food and one drink. He pays with a £5 note and gets £2.60 change. What did Lee buy?
8. Write the missing numbers on the number lines.

- +35
  - 18
  - 46

- +29
  - 18
  - 46

- +3
  - 18
  - -8

- +6 +6
  - 18
  - -3
9. Look at the diagrams on the centimetre square grid. Work out the area that is shaded on each diagram.
10. (a) Add together 3.7 and 6.5

(b) Subtract 5.7 from 15.2

(c) Multiply 254 by 5

(d) Divide 342 by 6
11. (a) I weigh a melon.

Then I weigh an apple and the melon.

Write the missing numbers in the sentences below.

The **melon** weighs ............ grams.

The **apple** weighs ............ grams.

(b) **How many grams** are in one **kilogram**?
Put a ring round the correct number below.

1 10 100 1000 10000
12. (a) There are two children in the Smith family.

The range of their ages is **exactly 7 years**.

What could the ages of the two children be?

Give an example.


(b) There are two children in the Patel family.

They are twins of the **same age**.

What is the range of their ages?


13. Here are four fractions.

\[
\frac{3}{4} \quad \frac{1}{8} \quad \frac{1}{3} \quad \frac{3}{5}
\]

Look at the number line below.

Write each fraction in the correct box.
14. (a) Jackie asked 27 people:

‘Do you like school dinners?’

The bar chart shows her results for ‘Yes’ and ‘No’.
Complete the bar chart to show her result for ‘Don’t know’.

(b) This pictogram also shows her results for ‘Yes’ and ‘No’.
Complete the pictogram to show her result for ‘Don’t know’.
15. (a) Complete the sentences.

\[
\text{\ldots\ldots\ldots out of 10 is the same as 70\%} \quad \quad \quad \quad \quad \quad \quad \quad \quad 1 \text{ mark}
\]

\[
10 \text{ out of 20 is the same as \ldots\ldots\ldots\%} \quad \quad \quad 1 \text{ mark}
\]

(b) Complete the sentence.

\[
\ldots\ldots \text{ out of } \ldots\ldots \text{ is the same as 5\%} \quad \quad \quad \quad \quad \quad \quad \quad \quad 1 \text{ mark}
\]

Now complete the sentence using different numbers.

\[
\ldots\ldots \text{ out of } \ldots\ldots \text{ is the same as 5\%} \quad \quad \quad \quad \quad \quad \quad \quad \quad 1 \text{ mark}
\]
16. The shapes below are drawn on square grids.

The diagrams show a rectangle that is rotated, then rotated again.
The centre of rotation is marked •

Complete the diagrams below to show the triangle when it is rotated, then rotated again.
The centre of rotation is marked •
17. I am thinking of a number.

My number multiplied by 15 is 315
My number multiplied by 17 is 357

What is my number?

18. Complete the statements below.

When $x$ is 8, $4x$ is .....

When $x$ is ....., $4x$ is 48

When $x$ is 8, ....., is 48
19. (a) Look at these three numbers.

Show that the mean of the three numbers is 10

(b) Four numbers have a mean of 10 and a median of 10, but none of the numbers is 10

What could the four numbers be?
Give an example.
20. The diagram shows triangle PQR.

Work out the sizes of angles $a$, $b$ and $c$

\[ a = \ldots \quad b = \ldots \quad c = \ldots \]
21. Solve these equations.

\[3y + 1 = 16\]

\[y = \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \]

\[18 = 4k + 6\]

\[k = \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \]

22. Work out

\[374 \times 23\]
23. P is the midpoint of line AB.

What are the coordinates of point P?

\[ P \text{ is } (\ldots, \ldots) \]