Mathematics test

Paper 1

Calculator not allowed

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 and a ruler.
- 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.
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. This question is about money called euros.

Write the total number of euros in each box.

The first one is done for you.

Total: 615 euros

Total: euros

Total: euros

Total: euros
2. A sequence of numbers decreases by 3 each time.

Write the missing numbers in the sequence below.
You can use the number line on the right to help you.

```
7  4  7  6  5  4  3  2  1  0  -1  -2  -3  -4  -5  -6  -7
```

2 marks
3. Here is part of the 36 times table.

\[
\begin{align*}
1 \times 36 &= 36 \\
2 \times 36 &= 72 \\
3 \times 36 &= 108 \\
4 \times 36 &= 144 \\
5 \times 36 &= 180 \\
6 \times 36 &= 216 \\
7 \times 36 &= 252 \\
8 \times 36 &= 288 \\
9 \times 36 &= 324 \\
10 \times 36 &= 360
\end{align*}
\]

Use the 36 times table to help you work out the missing numbers.

\[
\begin{align*}
288 \div 8 &= \quad \text{(1 mark)} \\
180 \div 36 &= \quad \text{(1 mark)} \\
11 \times 36 &= \quad \text{(1 mark)}
\end{align*}
\]
4. The table shows feeding times for some animals in a zoo.

<table>
<thead>
<tr>
<th>Start of feeding times</th>
<th>Length of feeding times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elephants 11:15am 2:15pm 3:20pm</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Giraffes 12:20pm 2:30pm</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Otters 1:00pm</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Seals 1:00pm 4:00pm</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Tigers 2:30pm</td>
<td>30 minutes</td>
</tr>
</tbody>
</table>

(a) The first feeding time for **giraffes** starts at 12:20pm.
At what time does it finish?

(b) One feeding time finishes at 3:00pm.
Which animal's feeding time is this?

(c) A visitor arrives at the zoo at **1:45pm**.
How many minutes later does the next feeding time for **elephants** start?
(d) A different visitor arrives at the zoo at 12:30pm.

She wants to watch feeding times for elephants, otters and seals that day.

Write three feeding times that she could watch.

Elephants at ______ : ______

Otters at ______ : ______

Seals at ______ : ______

5. Work out

64 + 57 = ______

64 - 57 = ______
6. In America, there are coins each worth 25 cents. These coins are called **quarters** because four of them make one dollar.

(a) Altogether, how many quarters make 3 dollars?

(b) Laura has 20 quarters. How many dollars is that?

(c) Dev wants to change 10 dollars into quarters. How many quarters should he get?
7.  (a) Tick (✓) all the numbers below that divide by 5 with no remainder.

12 15 16 20 30  

(b) Tick (✓) all the numbers below that divide by 3 with no remainder.

12 15 16 20 30  

(c) Tick (✓) all the numbers below that divide by 15 with no remainder.

12 15 16 20 30  

1 mark  

1 mark  

1 mark
8. The table shows the approximate populations of five different places.

<table>
<thead>
<tr>
<th>Place</th>
<th>Approximate population</th>
</tr>
</thead>
<tbody>
<tr>
<td>London</td>
<td>7,000,000</td>
</tr>
<tr>
<td>Sheffield</td>
<td>700,000</td>
</tr>
<tr>
<td>Harrogate</td>
<td>70,000</td>
</tr>
<tr>
<td>Ash Vale</td>
<td>7,000</td>
</tr>
<tr>
<td>Binbrook</td>
<td>700</td>
</tr>
</tbody>
</table>

(a) Which of the places has a population of about **seventy thousand**?


(b) Use the table to complete these sentences.

- The population of **Harrogate** is about **10 times** as big as the population of ____________

- The population of ____________ is about **100 times** as big as the population of **Harrogate**.

- The population of **Sheffield** is about __________ times as big as the population of **Ash Vale**.
9. Here are the rules for a number grid.

This number is the **sum** of the numbers in the middle row.

This number is the **product** of the numbers in the middle row.

Use the rules to write the missing numbers in these number grids.
10. The lengths of babies are measured at different ages.

The graph shows the longest and shortest a baby boy is likely to be.

(a) Write the missing numbers below.

A baby boy is **8 weeks old**.

The **longest** he is likely to be is about ______ cm.

The **shortest** he is likely to be is about ______ cm.

(b) A **34 week** old baby boy is **72 cm** long.

Put a cross on the graph to show this information.
Here are six number cards.

\[
\begin{array}{cccccc}
2 & 4 & 6 & 8 & 10 & 12 \\
\end{array}
\]

(a) Choose two of these six cards to make a fraction that is equivalent to \( \frac{1}{3} \)

(b) Choose two of these six cards to make a fraction that is greater than \( \frac{1}{2} \) but less than 1
12. The shape below is a regular pentagon. All five sides are exactly the same length.

Measure accurately one of the sides, then work out the perimeter of the pentagon.

Perimeter = cm
13. (a) A three-digit number is a multiple of 4

What could the number be?
Give an example.

Now give a different example.

(b) A two-digit number is a factor of 100

What could the number be?
Give an example.

Now give a different example.
14. (a) Write the answer to this calculation.

\[ 2.5 + 2.5 + 2.5 = \]

(b) Now write a number in each box to make this calculation correct.
The three numbers must be the same.

\[ + + = 4.5 \]

15. Sam says:

The only four-sided shape with four right angles is a square.

Is Sam correct?

\[ \square \text{Yes} \quad \square \text{No} \]

Explain your answer.
16. (a) When \( x = 8 \), what is the value of \( 5x \)?

Tick (✓) the correct box below.

- [ ] 5
- [ ] 13
- [ ] 40
- [ ] 58
- [ ] None of these

1 mark

(b) When \( x = 8 \), what is the value of \( 3x - x \)?

Tick (✓) the correct box below.

- [ ] 0
- [ ] 3
- [ ] 16
- [ ] 30
- [ ] None of these

1 mark

(c) When \( x = 8 \), what is the value of \( x^2 \)?

Tick (✓) the correct box below.

- [ ] 8
- [ ] 10
- [ ] 16
- [ ] 64
- [ ] None of these

1 mark
17. Lisa uses a grid to multiply 23 by 15

\[
\begin{array}{ccc}
\times & 20 & 3 \\
10 & 200 & 30 \\
5 & 100 & 15 \\
\end{array}
\]

\[200 + 100 + 30 + 15 = 345\]

Answer: 345

Now Lisa multiplies two different numbers.
Complete the grid, then give the answer below.

\[
\begin{array}{ccc}
\times & \_ & 40 & 3 \\
30 & \_ & \_ & \_ \\
\_ & 600 & \_ & 18 \\
\end{array}
\]

Answer: \_

3 marks
18. Fred has a bag of sweets.

<table>
<thead>
<tr>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 yellow sweets</td>
</tr>
<tr>
<td>5 green sweets</td>
</tr>
<tr>
<td>7 red sweets</td>
</tr>
<tr>
<td>4 purple sweets</td>
</tr>
<tr>
<td>1 black sweet</td>
</tr>
</tbody>
</table>

He is going to take a sweet from the bag at random.

(a) What is the **probability** that Fred will get a **black** sweet?

(b) Write the missing **colour** in the sentence below.

The probability that Fred will get a ____________ sweet is $\frac{1}{4}$
19. Write a number in each box to make the calculations correct.

\[ \phantom{+} + \phantom{-} = \phantom{-8} \]

1 mark

\[ \phantom{-} - \phantom{-} = \phantom{-8} \]

1 mark

20. A rectangle has an area of \(24\text{cm}^2\)

How long could the sides of the rectangle be?

Give three different examples.

\[ \phantom{\text{cm and cm}} \phantom{\text{cm and cm}} \phantom{\text{cm and cm}} \]

2 marks
21. (a) Write the missing numbers.

\[
50\% \text{ of } 80 = \underline{\hspace{2cm}} \\
5\% \text{ of } 80 = \underline{\hspace{2cm}} \\
1\% \text{ of } 80 = \underline{\hspace{2cm}}
\]

(b) Work out 56% of 80

You can use part (a) to help you.

\[
\underline{\hspace{2cm}}
\]
22. Look at this equation.

\[ y = 2x + 10 \]

(a) When \( x = 4 \), what is the value of \( y \)?

(b) When \( x = -4 \), what is the value of \( y \)?

(c) Which equation below gives the same value of \( y \) for both \( x = 4 \) and \( x = -4 \)?

Put a ring round the correct equation.

\[ y = 2x \quad y = 2 + x \quad y = x^2 \quad y = \frac{x}{2} \]
23. The diagram shows four different sized barrels.

<table>
<thead>
<tr>
<th>Barrel A</th>
<th>Barrel B</th>
<th>Barrel C</th>
<th>Barrel D</th>
</tr>
</thead>
<tbody>
<tr>
<td>holds 54 gallons</td>
<td>holds 36 gallons</td>
<td>holds 18 gallons</td>
<td>holds 9 gallons</td>
</tr>
</tbody>
</table>

Write the missing fractions as simply as possible.

The first one is done for you.

Barrel C holds $\frac{1}{2}$ of the amount barrel B holds.

Barrel D holds ______ of the amount barrel B holds.

Barrel C holds ______ of the amount barrel A holds.

Barrel B holds ______ of the amount barrel A holds.
END OF TEST