Mathematics test

Test B
Calculator allowed

First name
Middle name
Last name
School
DfE number

For marker’s use only

<table>
<thead>
<tr>
<th>Page</th>
<th>Marks</th>
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<tbody>
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<td>5</td>
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<td>23</td>
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<td>Total</td>
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</table>
These three children appear in some of the questions in this test.

Kirsty  Seb  Mina
Instructions

You may use a calculator to answer any questions in this test.

Work as quickly and as carefully as you can.

You have 45 minutes for this test.

If you cannot do one of the questions, go on to the next one.
You can come back to it later, if you have time.

If you finish before the end, go back and check your work.

Follow the instructions for each question carefully.

This shows where you need to put the answer.

If you need to do working out, you can use any space on a page.

Some questions have an answer box like this:

Show your method

For these questions you may get a mark for showing your method.
1. Write the missing numbers.

\[
\begin{align*}
57 + \square &= 125 \\
5 \times \square &= 175
\end{align*}
\]

2. Here is a semi-circle.

Measure accurately the length of the straight edge.

Give your answer in centimetres.
Mina and Seb share these coins so that they each have the **same** amount of money.

Mina chooses her coins first.

Seb takes the rest of the coins.

**Which coins could Mina choose?**
Here are three shapes made from regular hexagons.

Write the **fraction** of each shape that is shaded.
Here are five calculations.

For each, put a tick (√) in the box if the answer is greater than 450.
Put a cross (×) if it is not.

One has been done for you.

\[
\begin{align*}
46 \times 10 & \quad \checkmark \\
149 + 137 + 158 & \\
911 - 447 & \\
863 \div 2 & \\
16 \times 28 \frac{1}{2} &
\end{align*}
\]
This diagram shows a square with dots at the vertices and at the middle of each side.

The square is divided into four triangles, A, B, C and D.

Write the letters of all the triangles that have a right angle.

Write the letters of all the triangles that have two equal sides.
A survey was done to find out children's favourite season.

This chart shows the results.

spring
summer
autumn
winter

Number of children
0 2 4 6 8 10 12 14 16

How many more children chose autumn than chose spring?

Kirsty says,

'Exactly twice as many children chose summer as chose winter.'

Is Kirsty correct?
Circle Yes or No.

Yes / No

Explain how you know.
The table below shows five journeys a taxi driver made one day.

<table>
<thead>
<tr>
<th>journey number</th>
<th>start time</th>
<th>number of passengers</th>
<th>distance</th>
<th>cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9:15 am</td>
<td>2</td>
<td>8 km</td>
<td>£7.50</td>
</tr>
<tr>
<td>2</td>
<td>9:40 am</td>
<td>1</td>
<td>12 km</td>
<td>£9.90</td>
</tr>
<tr>
<td>3</td>
<td>10:30 am</td>
<td>3</td>
<td>7 km</td>
<td>£7.60</td>
</tr>
<tr>
<td>4</td>
<td>10:50 am</td>
<td>1</td>
<td>21 km</td>
<td>£15.50</td>
</tr>
<tr>
<td>5</td>
<td>12:10 pm</td>
<td>4</td>
<td>15 km</td>
<td>£12.00</td>
</tr>
</tbody>
</table>

On journey number 5, the passengers shared the cost equally.

**How much did each passenger pay?**

£

1 mark

**How many passengers made journeys of more than 10 km?**

passengers

1 mark

The 12 km journey took 40 minutes.

**What time did the taxi finish its journey?**

am

1 mark
Here is a design on a square grid.

Complete the design so that it is symmetrical about the mirror line.

Use a ruler.
Seb goes on a sponsored walk to collect money for charity.

His aunt promises to pay 75p for each kilometre he walks.

She pays him £6.75 at the end of the walk.

How many kilometres does Seb walk?

15% of the people walk 5km or less.

40% of the people walk 8km or more.

What percentage of the people walk between 5km and 8km?
Here is a number line.

What is the value of X?

\[ X = \quad (1) \text{ mark} \]

Estimate the value of Y.

\[ Y = \quad (1) \text{ mark} \]
Kirsty ran a race in one and a half minutes.

Mina took 10 seconds longer.

How many **seconds** did Mina take to run the race?

Seb made a jump of two and a half metres.

Kirsty’s jump was 10 centimetres longer.

How long was Kirsty’s jump?
Three single-digit numbers multiply to make 504

Write the missing numbers.

\[ \square \times \square \times \square = 504 \]

1 mark

Mina thinks of a 3-D shape.

She says,

'It has 5 faces.
Two opposite faces are triangles.
The other faces are rectangles.'

What is the name of the 3-D shape?

1 mark

Total out of 4 ______
Seb bought 2 apples and 3 pears.

He spent £1.59 altogether.

Apples cost 24p each.

How much does one pear cost?
Here are some tiles on a square grid.

Three different tiles can be fitted together without overlapping to make a shape identical to tile A.

Write the letters of the three tiles.

______ and ______ and ______
A gardener plants tulip bulbs in a flower bed.

She plants 3 red bulbs for every 4 white bulbs.

She plants 60 red bulbs.

How many **white** bulbs does she plant?

Here is a shaded shape on a 1cm square grid.

What is the **area** of the shaded shape?
Kirsty measured the length of her shadow every hour on one sunny day.

She plotted her results on this graph.

Look at the graph.

Estimate the length of Kirsty’s shadow at 3:30 pm.

Estimate a time when her shadow was 180 centimetres long.
The diagram shows four lines drawn on a square grid.

The lines are **AB, BC, CD and DA**.

Which two of the lines are **parallel**?
Circle them in the list below.

AB  BC  CD  DA

Which two of the lines are **perpendicular**?
Circle them in the list below.

AB  BC  CD  DA
Write the missing number to make this calculation correct.

\[(18 + \underline{\quad}) \times 32 = 777.6\]

21

A school buys some yo-yos as prizes.

The yo-yos cost £4.25 each.

The school has £40 to spend on prizes.

They buy as many yo-yos as they can.

How much money is left?

Show your method

22

2 mark(s)
23 \hspace{1cm} j \text{ and } k \text{ stand for two numbers.}

Double \( j \) equals half of \( k \).

Write numbers to complete the sentence below.

When \( j \) is \( \underline{\hspace{2cm}} \) then \( k \) is \( \underline{\hspace{2cm}} \) \hspace{1cm} 23

1 mark

24 \hspace{1cm} Here is a line on coordinate axes.

\[ y \]

\[ O \bullet \]

\[ P \bullet (25,12) \]

\[ Q \bullet \]

\[ R \bullet \]

Points \( O, P, Q \) and \( R \) are equally spaced.

The coordinates of \( P \) are \( (25,12) \).

What are the coordinates of \( R \)?

\[ R = \underline{\hspace{2cm}}, \underline{\hspace{2cm}} \] \hspace{1cm} 24

1 mark
Three whole numbers add up to 50

Seb says,

‘All three numbers must be even numbers.’

Is Seb correct?
Circle Yes or No.

Yes / No

Explain how you know.