Candidates answer on the question paper.

OCR supplied materials:
None

Other materials required:
• Geometrical instruments
• Tracing paper (optional)

INSTRUCTIONS TO CANDIDATES

• Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
• Use black ink. Pencil may be used for graphs and diagrams only.
• Read each question carefully. Make sure you know what you have to do before starting your answer.
• Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
• Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
• Answer all the questions.
• Do not write in the bar codes.

INFORMATION FOR CANDIDATES

• The number of marks is given in brackets [ ] at the end of each question or part question.
• Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
• The total number of marks for this paper is 60.
• This document consists of 16 pages. Any blank pages are indicated.

WARNING
No calculator can be used for this paper

This paper has been pre modified for carrier language

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Area of trapezium = \( \frac{1}{2} (a + b)h \)

Volume of prism = (area of cross-section) \( \times \) length
1  (a) Work out.

\[ 9 + 35 - 38 \]

(a) ______________________________ [1]

(b) Work out.

\[ 0.9 + 35 - 3.8 \]

(b) ______________________________ [2]

(c) Brian wants to work out \( 6.72 \div 0.2 \).

Complete his work.

\[ 0.2 \times \_ \_ \_ \_ = 2 \]

\[ 6.72 \times 10 = \_ \_ \_ \_ \]

\[ \_ \_ \_ \_ \div 2 = 33.6 \]

so \( 6.72 \div 0.2 = \_ \_ \_ \_ \_ \_ \_

[3]
2  (a) Work out.

\[ \frac{5}{8} + \frac{3}{8} - \frac{7}{8} \]

(b) Lorna is given £10 by her grandfather.
Lorna saves \( \frac{2}{5} \) of this money.

(i) How much of the £10 does Lorna save?

(b)(i) £ _____________________________ [2]

(ii) What fraction of the £10 does Lorna not save?

(ii) ______________________________ [1]
(a) Write down the coordinates of point A.

\[(a) \ (_____________ \ , \ _____________) \ [1]\]

(b) Measure BC in millimetres.

\[(b) \ ________________________ \ mm \ [1]\]

(c) ABCD is a parallelogram.

Plot and label point D and write down its coordinates.

\[(c) \ (_____________ \ , \ _____________) \ [2]\]

(d) What is the correct mathematical name for the angle ABC?

\[(d) \ ________________________ \ [1]\]
4 (a) Cheryl buys four pieces of wood. The lengths are 2.4 m, 3.25 m, 2.15 m and 150 cm.

How many centimetres longer is the longest piece of wood than the shortest piece?

(a) ___________________________ cm [2]

(b) Cheryl wants to make some shelves.

Complete the bill.

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td>£ 15.00</td>
</tr>
<tr>
<td>2 boxes of screws @ £1.50 each box</td>
<td>£ _________</td>
</tr>
<tr>
<td>10 wall brackets @ _________ each</td>
<td>£ 7.00</td>
</tr>
<tr>
<td>Cost of all items</td>
<td>£ _________</td>
</tr>
<tr>
<td>Delivery charge (10% of cost of all items)</td>
<td>£ _________</td>
</tr>
<tr>
<td>Total</td>
<td>£ _________</td>
</tr>
</tbody>
</table>

[5]
5  (a) Each side of a square has length $d$.

\[ d \]

Write an expression for the perimeter of the square.

(a) ________________________ [1]

(b) Four squares like the one in part (a) are joined in a row as shown.

\[ d \]

Write an expression for the perimeter of this shape. Give your answer in its simplest form.

(b) ________________________ [2]

(c) How many of these squares, joined in a row, will have a perimeter of $16d$?

(c) ________________________ [2]
6 (a) The diagram shows a right-angled triangle.

![Diagram](image)

Work out the size of angle \( a \).

(a) \( \underline{\quad} \) \( ^\circ \) [2]

(b) Not to scale

![Diagram](image)

Work out the size of angle \( b \).
Give a reason for your answer.

\( \underline{\quad} \) \( ^\circ \) because \( \underline{\quad} \)

__________° because ______________________________________________________
______________________________________________________________________ [2]
(c) (i) Show that the size of an interior angle of a regular octagon is $135^\circ$. [2]

(ii)* Bas is tiling a floor.
He has lots of identical tiles.
Each tile is a regular octagon.
He knows these octagonal tiles will not fit together without leaving gaps between them.
He buys some square tiles.

Now I can tile the floor using some of the octagonal tiles and some of the square tiles without leaving any gaps.

Explain why Bas may be right. [4]
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  What is the reciprocal of 5?</td>
<td>A 2</td>
</tr>
<tr>
<td>2  What is the reciprocal of ( \frac{1}{2} )?</td>
<td>B 1</td>
</tr>
<tr>
<td>3  What is the answer when a number is multiplied by its reciprocal?</td>
<td>C ( \frac{1}{5} )</td>
</tr>
<tr>
<td>4  Which number does not have a reciprocal?</td>
<td>D 0</td>
</tr>
</tbody>
</table>

Write down the letter for the correct answer to each question. The first one is done for you.

Question 1  ______________________ C

Question 2  ______________________

Question 3  ______________________

Question 4  ______________________ [2]
What type of correlation is shown on each diagram?

(a) Diagram 1 _______________________________
Diagram 2 _______________________________
Diagram 3 ________________________________ [3]
(b) Clyde always starts a journey with the fuel tank in his car full. When the journey is over he records the following.

- the length of the journey
- how many litres of fuel he puts into the tank to fill it again

This table gives details of some of his recent journeys.

<table>
<thead>
<tr>
<th>Length of journey (miles)</th>
<th>120</th>
<th>210</th>
<th>80</th>
<th>340</th>
<th>100</th>
<th>160</th>
<th>350</th>
<th>60</th>
<th>96</th>
<th>260</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of litres</td>
<td>11</td>
<td>17</td>
<td>7.5</td>
<td>27.2</td>
<td>10.2</td>
<td>25</td>
<td>30</td>
<td>6</td>
<td>8</td>
<td>20.5</td>
</tr>
</tbody>
</table>

(i) Complete the scatter graph by plotting the last four points. [2]

(ii) Draw a line of best fit on your scatter graph. [1]

(iii) Use your line of best fit to estimate the number of litres of fuel Clyde would need to fill the tank after a journey of 300 miles.

(b)(iii) ___________________________ litres [1]

(iv) On one of these journeys Clyde was delayed by roadworks and used much more fuel than usual.

Put a ring round the cross representing this journey. [1]
(a) Describe fully the **single** transformation that maps shape P onto shape Q.

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________

[3]

(b) Rotate shape P 180° about the point (−2, −2).
Label the image R.

[2]
Mark is organising a party for his group of 17 Scouts.

(a) (i) Each Scout will need \(\frac{3}{4}\) of a pizza.

How many pizzas should Mark buy?

(a)(i) __________________________ [3]

(ii) The pizzas normally cost £2.60 each.
Mark is given a discount of 15% off this price.

How much does Mark pay for each pizza?

(ii) £ _____________________________ [3]

(b) The area of the base of a can of lemonade is 32.4 cm².

What is this area in mm²?

(b) __________________________ mm² [2]