Instructions

• Use black ink or ball-point pen.
• Answer all questions.
• Answer the questions in the spaces provided – there may be more space than you need.
• Diagrams are NOT accurately drawn, unless otherwise indicated.
• You must show all your working out.

Information

• The marks for each question are shown in brackets – use this as a guide as to how much time to spend on each question.

Advice

• Read each question carefully before you start to answer it.
• Keep an eye on the time.
• Try to answer every question.
• Check your answers if you have time at the end
1. Write down the letter of the graph which could have the equation

(i) \( y = 3x - 2 \) \hspace{1cm} \text{................ (1)}

(ii) \( y = 2x^2 + 5x - 3 \) \hspace{1cm} \text{................ (1)}

(iii) \( y = \frac{3}{x} \) \hspace{1cm} \text{................ (1)}
2.(a) Complete the table of values for \( y = \frac{1}{x} \)  

<table>
<thead>
<tr>
<th>( x )</th>
<th>0.2</th>
<th>0.4</th>
<th>0.8</th>
<th>1.0</th>
<th>2.0</th>
<th>4.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>( y )</td>
<td>5.0</td>
<td></td>
<td>1.25</td>
<td></td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

b) On the grid, draw the graph of \( y = \frac{1}{x} \)
3.(a) Complete the table of values for \( y = x^3 + x - 2 \)

<table>
<thead>
<tr>
<th>( x )</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>( y  )</td>
<td>-12</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b) On the grid, draw the graph of \( y = x^3 + x - 2 \)
4.(a) Complete the table of values for $y = x^3 + 3x$

<table>
<thead>
<tr>
<th>$x$</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y$</td>
<td>-14</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

b) On the grid, draw the graph of $y = x^3 + 3x$
5. (a) Complete the table of values for \( y = x^3 - 3x + 1 \) 

\[
\begin{array}{cccccccc}
 x & -2 & -1.5 & -1 & -0.5 & 0 & 0.5 & 1 & 1.5 & 2 \\
 y & -1 & 3 & 2.375 & 1 & -0.375 & -0.125 & 3 \\
\end{array}
\]

(b) On the grid, draw the graph of \( y = x^3 - 3x + 1 \)
6.(a) Complete the table of values for \( y = x + \frac{1}{x} \) 

<table>
<thead>
<tr>
<th>( x )</th>
<th>0.2</th>
<th>0.4</th>
<th>0.6</th>
<th>0.8</th>
<th>1</th>
<th>2</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>( y )</td>
<td>5.2</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>4.25</td>
<td>5.2</td>
</tr>
</tbody>
</table>

(b) On the grid, draw the graph of \( y = x + \frac{1}{x} \)