Math 111 Worksheet 1

Show all work for full credit.

1. Rewrite each of the following inequalities using interval notation.
   a. \( x < -7 \) or \( x \geq 1 \)  
   b. \( 3 \leq x < 14 \)

2. Perform the operation and write your answer as a polynomial in standard form.
   a. \((x^2 + 3x - 4)(x + 5)\)
   b. \((x + 5)(x - 2)(x + 3)\)
   c. \(5(x + 2)^2\)

3. Consider the following table of values:

<table>
<thead>
<tr>
<th>B</th>
<th>-2</th>
<th>0</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>16</td>
<td>36</td>
<td>64</td>
</tr>
</tbody>
</table>

   a. Is \( C \) a function of \( B \)? If so, express this using function notation. If not, explain why.

   b. Is \( B \) a function of \( C \)? If so, express this using function notation. If not, explain why.
4. Decide whether each of the following could be the graph of a function.


Explain your choices.

5. Let \( f(x) = 5x^2 + 3x - 7 \). Find each of the following.
   
   a. \( f(5) \)

   b. \( f(-3) \)

   c. \( f(4x) \)

6. Consider the following graph of \( f(x) \). Find each of the following.

   a. \( f(4) \)

   b. \( f(5) \)

   c. \( f(10) \)