The following table gives the number of respondents who obtained each score.

<table>
<thead>
<tr>
<th>score</th>
<th>11</th>
<th>10</th>
<th>9</th>
<th>8</th>
<th>7</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>number</td>
<td>8</td>
<td>12</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

The numbers in parentheses below show the number of people who missed each question.

Tell whether the statements below make sense (not whether they are true or false).

1. \( \{a,b\}^* \) is of infinite length. **nonsense** (12)
   Sets have size or cardinality, not length. Strings have length.

2. \( \{a, b\}\{a, b\}\{a, b\} \) contains 8 elements. **sense** (6)
   The expression \( \{a, b\}\{a, b\}\{a, b\} \) denotes a set, namely the set \( \{aaa, aab, aba, baa, abb, bab, bba, bbb\} \), which in fact has 8 elements.

3. The string \( aabab \) is an element of the automaton \( M \). **nonsense** (4)
   A string cannot be an element of an automaton. It can be an element of the set of strings accepted by an automaton. It would make sense to say \( aabab \) is an element of \( L(M) \), or that \( aabab \) is accepted by \( M \).

4. \( M \) is an automaton with start state \( \{q\} \). **sense** (12)
   The states of an automaton can be any finite set, including sets of states of another automaton. In fact, this happens in the subset construction (K, Lectures 5,6).

5. \( L(M) = \emptyset \). **sense** (5)

6. Any single string \( x \) is regular. **nonsense** (11)
   Strings cannot be regular. Sets of strings can be regular. It would be proper to say that any singleton set \( \{x\} \) is regular.

Tell whether the given strings match the given regular expressions.

7. \( aaba \ a^* + b^* \) **does not match** (1)
8. \( abbbb \ (\varepsilon + a)^*b^* \) **matches** (0)
9. \( abb \ b^* + (a + b)^*b \) **matches** (6)
10. \( babab \ b(ab)^* \) **matches** (0)
11. \( abb \ (a + b)(a + b)^*a(a + b)^* \) **does not match** (0)