1. (10 points) The following problem is an application of Venn diagram:

**Hospital Drug Use:** Patients in a (hypothetical) hospital on a single day were taking antibiotics (A), blood pressure medication (B), and pain medication (P) in the following numbers:

<table>
<thead>
<tr>
<th></th>
<th>A only</th>
<th>A and BP only</th>
<th>BP only</th>
<th>A and P only</th>
<th>P only</th>
<th>BP and P only</th>
<th>None</th>
<th>All three</th>
</tr>
</thead>
<tbody>
<tr>
<td>A only</td>
<td>12</td>
<td>15</td>
<td>8</td>
<td>24</td>
<td>22</td>
<td>16</td>
<td>2</td>
<td>20</td>
</tr>
</tbody>
</table>

Draw the appropriate Venn diagram and answer the following question:

*How many patients took antibiotics or blood pressure medication, but not pain medication?*

2. (10 points) Draw a Venn diagram and check the **Validity** of the following **Deductive Argument**. Also check if it is **Sound**.

**Premise:** If you live in Boston, you live in Massachusetts.

**Premise:** Amanda does not live in Boston.

**Conclusion:** Amanda does not live in Massachusetts.