1. Draw an object and reference diagram showing the data structure that would result after executing all of the following statements.

```java
ListItem a = new ListItem(6, new ListItem(8, null));
ListItem b = new ListItem(2, a);
System.out.println("a = " + a);
System.out.println("b = " + b);
b.next = new ListItem(4, a.next);
a = a.next;
System.out.println("a = " + a);
System.out.println("b = " + b);
```

![Diagram of object and reference structure]

2. What output would be printed by executing the code fragment from question 1?

```
a = 6 8
b = 2 6 8
a = 8
b = 2 4 8
```

3. Assuming that memory is allocated starting at memory address 200, complete the table at the right to show how the structure created by the code in question 1 would be represented in memory. **Put an X by the addresses of any memory cells that contain garbage objects.**

<table>
<thead>
<tr>
<th>Address</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>8</td>
</tr>
<tr>
<td>201</td>
<td>6</td>
</tr>
<tr>
<td>202</td>
<td>200</td>
</tr>
<tr>
<td>203</td>
<td>204</td>
</tr>
<tr>
<td>205</td>
<td>202</td>
</tr>
<tr>
<td>206</td>
<td>4</td>
</tr>
<tr>
<td>207</td>
<td>200</td>
</tr>
</tbody>
</table>