The Trihybrid Cross

Using a Punnett square to predict the results of a monohybrid or dihybrid cross helps geneticists to understand the principles of Mendelian inheritance. In nature, however, an individual's phenotype results from the interaction of thousands of genes on many chromosomes.

In the fruit fly, *Drosophila*, the following genes are located on separate chromosomes:

<table>
<thead>
<tr>
<th>Gene</th>
<th>Dominant allele</th>
<th>Recessive allele</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>eyes (E)</td>
<td>eyeless (e)</td>
</tr>
<tr>
<td>2</td>
<td>hairy body (H)</td>
<td>hairless body (h)</td>
</tr>
<tr>
<td>3</td>
<td>large wings (L)</td>
<td>small wings (l)</td>
</tr>
</tbody>
</table>

Predict the results of a cross between two fruit flies, both heterozygous, for all the traits shown above; then answer the question below.

What are the phenotypic ratios predicted by the cross above?