1) What is the risk of getting a traffic infringement?

2) What is the risk of a restricted driver getting a traffic infringement?

3) What is the risk of a learner driver getting a traffic infringement?

**RISK** = the chance of an event occurring (usually a decimal or %)

Note: the risk is related to the context.

   What is the risk of a person with a traffic infringement being a learner driver???

What is the risk of (group) having (something happen)

Risk is usually associated with something detrimental (cancer, death, food poisoning). There is also economic risk, business risk etc as well as health risk

**Risk can be a ratio.** eg The risk of being struck by lightening is 4.5 per 1 000 000 people So the risk is 4.5 / 1 000 000 = 0.0000045 or 0.00045%
Factors which influence risk can cause the risk to increase or decrease.

Example: A sample of some Males over 50 years old in NZ

<table>
<thead>
<tr>
<th>Group A</th>
<th>Heart Disease</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight</td>
<td>24</td>
<td>142</td>
<td>166</td>
</tr>
<tr>
<td>Not Overwt</td>
<td>14</td>
<td>170</td>
<td>184</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>312</td>
<td>350</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group B</th>
<th>Heart Disease</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking</td>
<td>12</td>
<td>65</td>
<td>77</td>
</tr>
<tr>
<td>Non-smoker</td>
<td>9</td>
<td>84</td>
<td>93</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>149</td>
<td>170</td>
</tr>
</tbody>
</table>

**Absolute risk** (ignores the risk factor)
Absolute Risk of Heart Disease in Group A = 38 / 350 = 0.109
Absolute Risk of Heart Disease in Group B = 21 / 170 = 0.124

Risk of Heart Disease in an **overweight** male = 24 / 166 = 0.145
Risk of Heart Disease in a non-overweight male = 14 / 184 = 0.076

Risk of Heart Disease in an **Smoking** male = 12 / 77 = 0.156
Risk of Heart Disease in an non-smoking male = 9 / 93 = 0.097

Conclusion / Discussion? What do you notice?
How can we compare risk factors?
NOTE: Risk and Absolute Risk will always be between 0 & 1 as they’re probabilities
Relative Risk

This is used to compare the risk for two groups. It gives a measure of the impact of the behaviour or treatment a group is exposed to. The non-exposed group is the baseline group which we measure the impact of the behaviour or treatment against.

Relative Risk does not have to be between 0 and 1

Relative Risk = \frac{\text{Risk for exposed group}}{\text{Risk for non-exposed group}}

Relative Risk of Heart Disease in an overweight male compared with a non-overweight male = \frac{0.145}{0.076} = 1.90

Conclusion? Context-Context-Context!! Based on this study overweight men are 1.9 times more likely to suffer from heart disease than non-overweight men.

Relative Risk of Heart Disease in an Smoking male compared with a non-smoking male = \frac{0.156}{0.096} = 1.63

Conclusion? Comparison?