In [7]:

```
import pandas as pd
from scipy.stats import chi2_contingency as chc
from scipy.stats import chi2 as ch
```

1.

In [12]:

```
table = [[57,87,24],[50,42,6],[42,22,5]]
stat,p,dof,exp = chc(table)
pv = 9.49
alpha = 0.05
print("P-Value : " + str(pv))
print("DOF : " + str(dof))
print("Alpha Value: " + str(alpha))
print("Expected : \n" + str(exp))
print("Chi : " + str(stat))
if(stat > pv):
  print("\nDependent (reject H0)\n")
else:
  print("\nIndependent (accept H0)\n")
```

```
P-Value : 9.49
DOF : 4
Alpha Value: 0.05
Expected :
[[74.72238806 75.72537313 17.55223881]
 [43.5880597  44.17313433 10.23880597]
 [30.68955224 31.10149254  7.20895522]]
Chi : 18.564232671266847

Dependent (reject H0)
```

2.

In [13]:

```
table = [[842,736,541],[616,646,842]]
stat,p,dof,exp = chc(table)
pv = 5.99
alpha = 0.05
print("P-Value : " + str(pv))
print("DOF : " + str(dof))
print("Alpha Value: " + str(alpha))
print("Expected : \n" + str(exp))
print("Chi : " + str(stat))
if(stat > pv):
  print("\nDependent (reject H0)\n")
else:
  print("\nIndependent (accept H0)\n")
```

```
P-Value : 5.99
DOF : 2
Alpha Value: 0.05
Expected :
[[731.58939143 693.45441629 693.95619228]
 [726.41060857 688.54558371 689.04380772]]
Chi : 106.35116755941061

Dependent (reject H0)
```

3.

In [15]:

```
table = [[108,15],[34,13]]
stat,p,dof,exp = chc(table)
pv = 3.81
alpha = 0.05
print("P-Value : " + str(pv))
print("DOF : " + str(dof))
print("Alpha Value: " + str(alpha))
print("Expected : \n" + str(exp))
print("Chi : " + str(stat))
if(stat > pv):
  print("\nDependent (reject H0)\n")
else:
  print("\nIndependent (accept H0)\n")
```

```
P-Value : 3.81
DOF : 1
Alpha Value: 0.05
Expected :
[[102.74117647  20.25882353]
 [ 39.25882353   7.74117647]]
Chi : 4.840571277518075

Dependent (reject H0)
```