Problem 4. **For students enrolled in Math6397 only.** In the new teams, work out the solution to Project 3, linked from the course webpage.

- Since flies are being consumed, the total number of flies changes between the different time periods.

  We do a χ^2-test with the data

Time	Consumed	Alive	Total
<48	43	167	210
48-96	16	151	167
96-144	13	138	151
144-192	12	126	138
Sum	84	582	666

  with 3 degrees of freedom whcih gives $p = 0.00062$, so we can reject the hypothesis that the survival probability stays constant.

- Now we create contingency tables for the time periods.

	Consumed	Survive	Total
Light	16	89	105
Heavy	27	78	105
Total	43	167	210

Table 1: Contingency table for 0-48 hours

We apply the chi-squared test to the first table, because the expected values are all above 5 (large counts). This gives a p-value 0.0600 for the two-sided test. Knowing that the chi-square value is large for both extremes (mortality of heavy flies larger or smaller than expected) we have to divide this by two because we only want to count the extreme tables on one side. Thus, our p-value is 0.03.

	Consumed	Survive	Total
Light	6	83	89
Heavy	10	68	78
Total	16	151	167

Table 2: Contingency table for 48-96 hours