10.2 Worksheet 1

Chi-Squared Test 2-Way Tables

**★I can calculate the expected counts from a two-way table★**

**★I can calculate the Chi-Square statistic from a two-way table★**

**★I can perform a Chi-Square test to determine association★**

1. How is hatching python eggs influenced by the temperature of the snake’s nest? Researchers assigned newly laid eggs to one of three temperatures: hot, neutral, or cold. Here is the data on the number of eggs that hatched:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Hatched** | **Did Not Hatch** | **Total** |
| **Cold** | **16** | **11** | **27** |
| **Warm** | **38** | **18** | **56** |
| **Hot** | **75** | **29** | **104** |
| **Total** | **129** | **58** | **187** |

1. Calculate the expected values for hatched and not hatched eggs and put these in ( ) in the table above.
2. Perform a Chi-Squared test to determine if there are significant differences in the proportion of eggs that hatched in the different temperature groups. (Show ALL work)
3. A study was conducted to determine if there was a relationship between survival of patients with heart disease and pet ownership. The following data was collected:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Do NOT own a pet | Own a pet | Total |
| Patient is Alive | 28 | 50 |  |
| Patient has Died | 11 | 3 |  |
| Total |  |  |  |

1. Calculate the marginal totals and place the values in the table above.
2. Calculated the expected counts and place these in ( ) in the table above.
3. Is there significant evidence to conclude that pet ownership improves survival rate? Do a Chi-squared test to determine if there is significant evidence to conclude that pet ownership improves survival rate. (Show ALL steps)