10.2 Worksheet 2

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. In 1912, the luxury liner Titanic, on its first voyage across the Atlantic, struck an iceberg and sank. Some passengers got off the ship in lifeboats, but many died. Think of the Titanic disaster as a social experiment to determine how people behave when faced with a life or death situation, where only some can escape. Here is the information about who lived and who died by gender:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Men** | **Women** | **Total** |
| **Died** | **680** | **126** |  |
| **Survived** | **168** | **317** |  |
| **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. Do a Chi-squared test to determine if there is significant evidence to conclude that a higher proportion of men died in this situation. (Show ALL steps)
4. More data taken from the Titanic based on the social class of the passengers:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Died** | **Survived** | **Total** |
| **Highest Social Class** | **117** | **187** |  |
| **Middle Class** | **163** | **112** |  |
| **Lowest Social Class** | **526** | **186** |  |
| **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 survival rate depends on social class? Do a Chi-squared test to determine if there is significant evidence to conclude that survival rate depends on social class. (Show ALL steps)