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“I pledge my honor I have abided by the Stevens Honor System”

Problem 9.37

Part A: (1 = small, 2 = medium, 3 = large, 4 = total)

```
  sampleClaims notAllowed total
1           57          6    63
2           17          5    22
3            5          1     6
4           79         12    91
```

Part B: (where 1st = % not for small, 2nd is % not for medium, 3rd is % not for large)

```
[1] 0.0952381 0.2272727 0.1666667
```

Part C:

```
# The large strata has an expected value less than 5 so we combine the medium
# and large strata.
```

Part D:

```
# H0 => No relationship between Sampled claims and whether claim is not allowed
```

Part E:

```
        Pearson's Chi-squared test with Yates' continuity correction

data:  data
X-squared = 1.4725, df = 1, p-value = 0.2249

> # Assuming an alpha less than 0.05, since the p-value of our significance test is
> # greater than 0.05, we fail to reject the null hypothesis. Thus we do not know
> # whether there is or is not a relationship between the two variables.
```

Problem 9.38

Part A:

```
> paste("Small estimate value: ", small_est, sep = "")
[1] "Small estimate value: 318.285714285714"
> paste("Medium estimate value: ", medium_est, sep = "")
[1] "Medium estimate value: 55.9090909090909"
> paste("Large estimated value:  ", large_est, sep ="")
[1] "Large estimated value:  9.66666666666667"
```

Part B:

```
> paste("Margin of Error for small: ∓" , SE_pop[1],  sep = "")
[1] "Margin of Error for small: ±123.597211995607"
> paste("Margin of Error for medium: ∓", SE_pop[2],  sep = "")
[1] "Margin of Error for medium: ±21.9791325800337"
> paste("Margin of Error for large: ∓",  SE_pop[3],  sep = "")
[1] "Margin of Error for large: ±8.82441898202768"
```

Problem 9.50

Probabilities: (1st = group 1 , 2nd = group 2, ., 5th = group 5)

```
> expected
[1] 0.27425312 0.18591904 0.07965567 0.18591904 0.27425312
```

Goodness of Fit & Expected number: (expected = expected numbers)

```
> data
  samples  expected
1     139 137.12656
2     102  92.95952
3      71  39.82784
4      78  92.95952
5     140 137.12656

        Pearson's Chi-squared test

data:  data
X-squared = 9.6728, df = 4, p-value = 0.04631
```

 # Problem 9.51

Intervals:

Group 1	Group 2	Group 3	Group 4	Group 5
X < -1.5	**-1.5 < X <-0.75**	**-0.75 < X < 0.75**	**0.75 < X < 1.5**	**1.5 < X**

Data & Expected Number: (samples = counted numbers in interval, expected = expected number in interval)

```
> data
  samples  expected
1     139 137.12656
2     102  92.95952
3      71  39.82784
4      78  92.95952
5     140 137.12656
```

Goodness of Fit:

```
        Pearson's Chi-squared test

data:  data
X-squared = 9.6728, df = 4, p-value = 0.04631
```