Lab #8  STA 3123  Fall 2001  Name:______________________________

Maximum Score: 50 points

I. Go to MINITAB, set up your outfile and enter your name.

% source programs/minitab
MTB > outfile 'LAB08'
MTB > # (Type your full name)
MTB >

II. Let's do the example of an one-way table given in the text. Read example 13.1 on pages 716-718. Now enter the data and print it.

MTB > name c1 'position' c2 'prob' c3 'observed'
MTB > read c1-c3
DATA> 1 .07 39
DATA> 2 .18 99
DATA> 3 .65 336
DATA> 4 .10 26
DATA> end data
MTB > print c1-c3

III. Use the program 'programs/1waytab.mtb' to compute the value of $\chi^2$ and its p-value.

MTB > execute 'programs/1waytab.mtb'

According to MINITAB, if opinions about how marijuana possession should be treated are unchanged after viewing the program then we would expect to find ______ people in our sample favor legalization, ______ people in our sample favor decriminalization, ______ people in our sample favor the existing laws and ______ people have no opinion.

Since $\chi^2 = \underline{\hspace{2cm}}$ with p-value $= \underline{\hspace{2cm}}$, there _________ enough evidence to indicate that the citizens within the viewing area have changed their minds about how the possession of marijuana should be considered legally.
IV. Read exercise 13.12 on page 720.

COMPLETE THE FREQUENCY TABLE.

<table>
<thead>
<tr>
<th>Response</th>
<th>Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree Strongly (1)</td>
<td>______</td>
</tr>
<tr>
<td>Agree Somewhat (2)</td>
<td>______</td>
</tr>
<tr>
<td>Disagree Somewhat (3)</td>
<td>______</td>
</tr>
<tr>
<td>Disagree Strongly (4)</td>
<td>______</td>
</tr>
</tbody>
</table>

IV. Do the data provide enough evidence to indicate that the Internet users are not equally divided among the four categories? Use $\alpha = .05$.

Enter your data. Put the numbers for the responses in C1, the proportions according to the null hypothesis in C2 and your observed frequencies in C3. In order to use the program, "programs/1waytab.mtb", we will enter the data in C1 - C3 as before. Fill in the blanks below, before entering the data.

```
MTB > read C1-C3
DATA> 1 ____ ____
DATA> 2 ____ ____
DATA> 3 ____ ____
DATA> 4 ____ ____
DATA> end data
MTB > name c1 'response'
MTB > print c1-c3
MTB > execute 'programs/1waytab.mtb'
```

Since $\chi^2 = \_______________$ with p-value = \_______________, there ______________ enough evidence to indicate that the Internet users are not equally divided among the four categories.
V. Let's do the example of a crosstab given in the text. Read section 13.2 on pages 721-724. Now enter the data.

\begin{verbatim}
MTB > name c11 'A' c12 'B' c13 'C' c14 'D'
MTB > read c11-c14
DATA> 157 65 181 10
DATA> 126 82 142 46
DATA> 58 45 60 28
DATA> end
MTB > chis c11-c14

χ² = _______________________ with df = ____________________.

MTB > # The following commands are used to compute
MTB > # the p-value of our test statistic.
MTB > Let k3 = 45.812
MTB > Let k6 = 6
MTB > cdf k3 k5;
SUBC> chis k6.
MTB > Let k4 = 1 - k5
MTB > print k3-k6

Since χ² = _______________________ with p-value = __________________, there
________________ enough evidence to indicate there is a relationship
between the size and the manufacturer of newly purchased U.S.-made
automobiles.

VI. Suppose the following data was collected at FIU to determine
whether the ethnic distribution of new students in 2000 differs
from that of new students in 1999. Use α = .10.

<table>
<thead>
<tr>
<th></th>
<th>Asian</th>
<th>Black</th>
<th>White</th>
<th>Hispanic</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>5</td>
<td>13</td>
<td>18</td>
<td>59</td>
<td>5</td>
</tr>
<tr>
<td>2000</td>
<td>12</td>
<td>26</td>
<td>44</td>
<td>112</td>
<td>6</td>
</tr>
</tbody>
</table>

Enter the data in the space provided, before entering it in the
computer.

MTB > read c21-c25

DATA> ______ ______ ______ ______ ______
DATA> ______ ______ ______ ______ ______
DATA> ______ ______ ______ ______ ______
DATA> end
MTB > name c21 'Asian' c22 'Black' c23 'White' c24 'Hispanic'
MTB > name c25 'Other'
MTB > chis c21-c25

\[ \chi^2 = \_\_\_\_\_\_\_\_\_\_\_ \text{ with } df = \_\_\_\_\_\_\_\_\_\_. \]

MTB > # The following commands are used to compute
MTB > # the p-value of our test statistic.

Remember: k3 'chi-sq' k6 'df'

MTB > Let k3 = 

MTB > Let k6 = 

MTB > cdf k3 k5;
SUBC> chis k6.
MTB > Let k4 = 1 - k5
MTB > print k3-k5

Since \[ \chi^2 = \_\_\_\_\_\_\_\_\_\_\_ \text{ with } p\text{-value } = \_\_\_\_\_\_\_\_\_\_, \text{ there is }
\_\_\_\_\_\_\_\_\_ enough evidence to indicate there is a relationship
between the year the student entered FIU and his/her ethnic group.

VI. Save your worksheet and exit MINITAB

MTB > save worksheet 'LAB08'
MTB > stop

VII. Use the menu program and print your output.