Math 110 Final Exam Review

<table>
<thead>
<tr>
<th>Contraceptive Use</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rare/Never</td>
<td>210 (22%)</td>
<td>350 (35%)</td>
<td>560</td>
</tr>
<tr>
<td>Sometimes</td>
<td>190 (20%)</td>
<td>320 (32%)</td>
<td>510</td>
</tr>
<tr>
<td>Always</td>
<td>400 (45%)</td>
<td>530 (55%)</td>
<td>930</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>800</strong></td>
<td><strong>1200</strong></td>
<td><strong>2000</strong></td>
</tr>
</tbody>
</table>

$\chi^2 = 1.05$

62. Two Variables: Gender & Contraceptive use. Both are categorical.

64. Gender
65. Contraceptive Use
66. See above
67. Each $E$ is $\geq 5$, so yes.
68. $E = \frac{(O-E)^2}{E}$

\[
\chi^2 = \sum \frac{(O-E)^2}{E}
\]

\[
\text{I.S.: } \chi^2 = 6.573.
\]

\[
\#70 \quad \text{df} = (\text{rows-1})(\text{cols-1}) = (2-1)(2-1) = 2 \cdot 1 = 2
\]

\[\frac{\#71 \quad \text{CRITICAL VALUE}}{\alpha}
\]

\[\begin{array}{c}
\text{No} \\
\text{Critical Value} \\
\text{5.9915}
\end{array}
\]

\[\#73 \quad \text{T.S.} > \text{C.V.} \Rightarrow \text{Reject } H_0 \frac{1}{2} \text{ Support } H_1.
\]

\[\#74 \quad H_0: \text{gender is independent of contraceptives} \\
H_1: \text{they are dependent}.
\]

The data don't support the claim that contraceptives are independent of gender.