According to an article in Marketing News, fewer checks are being written at the grocery store checkout than in the past. To determine whether there is a difference in the proportion of shoppers who pay by check among three consecutive years at a 0.05 level of significance, the results of a survey of 500 shoppers in three consecutive years are obtained and presented below.

<table>
<thead>
<tr>
<th>Check Written</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>225</td>
<td>175</td>
<td>125</td>
</tr>
<tr>
<td>No</td>
<td>275</td>
<td>325</td>
<td>375</td>
</tr>
</tbody>
</table>

(a) What is your conclusion based the above data?

The hypotheses (1 pts.):

Decision Rule (1 pt.):

The test statistic (4 pts.):
Critical value(s) (1 pts.):

Decision and Conclusion (2 pts.):

(b) If appropriate, use the Marascuilo procedure at 1% level of significance to determine which proportions are different. (6 points)
Q.No.2:- A fast food restaurant that sells burritos is concerned about the variability in the amount of filling that different employees place in the burritos. To achieve product consistency they need the variance to be no more than 1.7 ounces\(^2\). A sample of \(n = 18\) burritos showed a sample variance of 2.89 ounces\(^2\). Using a 0.10 level of significance, what can you conclude about the product consistency?

The Hypotheses: (1 pt.)

Decision Rule: (1 pt.)

Test Statistic: (2 pts.)

Critical value(s): (1 pt.)

Decision and conclusion: (2 pts.)