Average systolic blood pressure of a normal male is supposed to be about 129. Measurements of systolic blood pressure on a sample of 12 adult males from a community whose dietary habits are suspected of causing high blood pressure are listed below:

<table>
<thead>
<tr>
<th>bp</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>115</td>
</tr>
<tr>
<td>2</td>
<td>130</td>
</tr>
<tr>
<td>3</td>
<td>134</td>
</tr>
<tr>
<td>4</td>
<td>155</td>
</tr>
<tr>
<td>5</td>
<td>130</td>
</tr>
<tr>
<td>6</td>
<td>131</td>
</tr>
<tr>
<td>7</td>
<td>131</td>
</tr>
<tr>
<td>8</td>
<td>119</td>
</tr>
<tr>
<td>9</td>
<td>110</td>
</tr>
<tr>
<td>10</td>
<td>138</td>
</tr>
<tr>
<td>11</td>
<td>137</td>
</tr>
<tr>
<td>12</td>
<td>110</td>
</tr>
</tbody>
</table>

Do the data justify \((\alpha = 0.01)\) the suspicions regarding the blood pressure of this community?

1. Enter the values into a variable \((see\ left\ figure,\ below)\). Be sure to create a Normal Q–Q Plot first to assess the normality of the sample data \((see\ separate\ handout\ on\ Normal\ Q–Q\ Plots)\).

2. Select Analyze → Compare Means → One-Sample T Test… \((see\ right\ figure,\ above)\).

3. Select “Blood Pressure” as the test variable and enter “129” (the null-hypothesized value) as the test value. Click the “Options…” button and enter the appropriate confidence level (98%, since \(\alpha = 0.01\) for this one-tailed test), if needed. Click “Continue” to close the options and then click “OK” \((see\ the\ two\ figures,\ below)\).
4. Your output should look like this.

```
\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|}
\hline
 & \textbf{N} & \textbf{Mean} & \textbf{Std. Error} \\
\hline
\textbf{Blood Pressure} & 12 & 133.000 & 4.0245 \\
\hline
\end{tabular}
\caption{One-Sample Statistics}
\end{table}
```

```
\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|c|}
\hline
 & \textbf{t} & \textbf{df} & \textbf{Sig. (2-tailed)} & \textbf{Mean Difference} \\
\hline
\textbf{Blood Pressure} & .9939 & 11 & .3415 & 4.0000 & -6.9350 & 14.9390 \\
\hline
\end{tabular}
\caption{One-Sample Test}
\end{table}
```

5. You should use the output information in the following manner to answer the question.

**Step 0:** Check Q–Q Plot
Since the points lie along the diagonal line, the sample data is approximately normally distributed. Thus, we may continue with performing the \(T\)-procedures.

**Step 1:** Hypotheses
\(H_0: \mu = 129\)
\(H_a: \mu > 129\)

**Step 2:** Significance Level
\(\alpha = 0.01\)

**Step 3:** Rejection Region
Reject the null hypothesis if \(p\)-value \(\leq 0.01\).
\((t_{0.01, df = 11} = 2.72\) \(\Rightarrow\) Reject the null hypothesis if \(T \geq 2.72\).\)

**Step 4:** Test Statistic
From the output, \(T = 0.9939\) with 11 degrees of freedom.
\[p\text{-value} = \frac{1}{2} (\text{Sig. (2-tailed)}) = \frac{1}{2} (0.3416) = 0.1708\]
[Note: \(\text{Sig. (2-tailed)}\) is the \(p\)-value for a two-tailed hypothesis test.]

**Step 5:** Conclusion
Since \(p\)-value = 0.1708 > 0.01 = \(\alpha\) (0.9939 < 2.72), we fail to reject the null hypothesis.

**Step 6:** State conclusion in words
At the \(\alpha = 0.01\) level of significance, there is not enough evidence to conclude that there is high blood pressure in this community’s males. [Since we failed to reject the null hypothesis, no confidence interval is needed.]