Problem 1:
Researchers at the University of Florida’s Institute of Food and Agricultural Sciences wanted to know whether supplementing chicken feed with corn oil would cause them to produce larger eggs (measured in grams). So hens were randomly assigned to one of two groups. One group of hens got the corn oil and the other group of hens did not. Please interpret the Excel output presented here.

- **Independent Variable:**
  - Group 1: ________________
  - Group 2: ________________

- **Dependent Variable:**
  - Mean for Group 1: ________________
  - Mean for Group 2: ________________

- **State the null hypothesis:** There is no difference between ________________
- **If we reject the null we are stating that:** There is a difference between ________________
- **Is this a quasi or true experiment?** ________________
- **Is this a between or within participant design?** ________________
- **The level of measurement for the independent variable is:** (Nominal, ordinal, interval or ratio) ________________
- **The level of measurement for the dependent variable is:** (Nominal, ordinal, interval or ratio) ________________

<table>
<thead>
<tr>
<th>t-Test: Two-Sample Assuming Equal Variances</th>
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</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Variance</td>
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<tr>
<td>Observations</td>
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<tr>
<td>Pooled Variance</td>
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<tr>
<td>Hypothesized Mean Difference</td>
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<tr>
<td>df</td>
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<tr>
<td>t Stat</td>
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<tr>
<td>t Critical one-tail</td>
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<tr>
<td>P(T&lt;=t) one-tail</td>
</tr>
<tr>
<td>t Critical two-tail</td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
</tr>
</tbody>
</table>

- **Value for the observed t-statistic is:** ________________ ("t Stat")
- **Value for the critical t-statistic is:** ________________ ("t Critical two-tail")
- **Is the observed score bigger than the critical score?** ________________
- **Do we “reject the null”?** ________________
- **Is p < 0.05?** ________________
- **What is the exact p value:** ________________ ("P(T<=t) two-tail")
- **Was it a significant difference:** ________________
- **State the alpha level ________________ (alpha = 0.05)

Interpret and report your t-test results in proper form. Construct a brief summary of your results comparing the two groups.

**Remember there are four parts to this summary**

1. List independent and dependent variables, and means for the two groups
2. Describe type of test completed (t-test) and whether it was significant
3. Statistical summary statement that looks like this: t(38) = 2.66; p < 0.05
4. Provide exact p value
Problem 2:
The Louisiana "Opening Doors program" was designed to help community college students by providing a financial incentive to make good progress. The colleges offered students a $1,000 scholarship for each of two semesters, or $2,000 total, if they maintained at least half-time enrollment and a 2.0 (or C) grade point average. Students who met program eligibility criteria were randomly assigned to two groups: an incentive group and a no incentive control group (who received no financial incentive). They measured the GPA for the students. Please interpret the Excel output presented here

- Independent Variable: __________________________
  o Group 1: __________________________
  o Group 2: __________________________

- Dependent Variable: __________________________
  o Mean for Group 1: __________________________
  o Mean for Group 2: __________________________

- State the null hypothesis: There is no difference between __________________________

- If we reject the null we are stating that: There is a difference between __________________________

- Is this a quasi or true experiment? ________________  Is this a between or within participant design? ________________

- The level of measurement for the independent variable is: (Nominal, ordinal, interval or ratio) __________________________

- The level of measurement for the dependent variable is: (Nominal, ordinal, interval or ratio) __________________________

- Sample size total is: ______  Sample size “No Incentive” group: ______  Sample size “Yes” group: ______

- Degrees Freedom total: _____  Degrees Freedom “No Incentive”: _____  Degrees Freedom “Yes” group: _____

- Value for the observed t-statistic is: ________________  Value for the critical t-statistic is: ________________  ("t Critical two-tail")

- Is the observed score bigger than the critical score? ______  Do we “reject the null”? ________________

- Is p < 0.05? ______  What is the exact p value: ________________  ("P(T<=t) two-tail")

- Was it a significant difference: ________________  State the alpha level ________________ (alpha = 0.05)

Interpret and report your t-test results in proper form. Construct a brief summary of your results comparing the two groups.

Remember there are four parts to this summary
5. List independent and dependent variables, and means for the two groups
6. Describe type of test completed (t-test) and whether it was significant
7. Statistical summary statement that looks like this: t(38) = 2.66; p < 0.05
8. Provide exact p value

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Problem 3:
An article in the *Journal of Advertising* explored how many items were recalled by first grade students from 60-second television commercials. Children were randomly assigned to one of two groups. The first group watched the video of the commercial with sound, while the second group watched the commercial with no sound. They measured the number of items recalled from the commercial for the children. Please interpret the Excel output presented here

- **Independent Variable:** ____________________________
  - Group 1: ____________________________
  - Group 2: ____________________________

- **Dependent Variable:** ____________________________
  - Mean for Group 1: ____________________________
  - Mean for Group 2: ____________________________

- **State the null hypothesis:** There is no difference between__________________________

- **If we reject the null we are stating that:** There is a difference between__________________________

- **Is this a quasi or true experiment?** ________________  
  **Is this a between or within participant design?** ________________

- **The level of measurement for the independent variable is:** (Nominal, ordinal, interval or ratio) ____________________________

- **The level of measurement for the dependent variable is:** (Nominal, ordinal, interval or ratio) ____________________________

- **Sample size total is:** ______  
  **Sample size “No Sound” group:** ______  
  **Sample size “Yes” group:** ______

- **Degrees Freedom total:** ______  
  **Degrees Freedom “No Sound”:** ______  
  **Degrees Freedom “Yes” group:** ______

- **Value for the observed t-statistic is:** ____________  
  **("t Stat")**  
  **Is the observed score bigger than the critical score?** ______

- **Value for the critical t-statistic is:** ____________  
  **("t Critical two-tail")**  
  **Do we “reject the null”?** ______

- **Is p < 0.05?** ______  
  **What is the exact p value:** ____________  
  **("P(T<=t) two-tail")**

- **Was it a significant difference:** ____________  
  **State the alpha level** ____________ (alpha = 0.05)

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<thead>
<tr>
<th></th>
<th>Video_NoSound</th>
<th>Video_WithSound</th>
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</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.7</td>
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<tr>
<td>Variance</td>
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<tr>
<td>Observations</td>
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<tr>
<td>Pooled Variance</td>
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<tr>
<td>Hypothesized Mean Difference</td>
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<tr>
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<tr>
<td>t Stat</td>
<td>1.173110532</td>
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<tr>
<td>P(T&lt;t) one-tail</td>
<td>0.124026325</td>
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<tr>
<td>t Critical one-tail</td>
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<td>P(T&lt;t) two-tail</td>
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<tr>
<td>t Critical two-tail</td>
<td>2.024394164</td>
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</tr>
</tbody>
</table>

Interpret and report your t-test results in proper form. Construct a brief summary of your results comparing the two groups.  
*Remember there are four parts to this summary*

9. List independent and dependent variables, and means for the two groups
10. Describe type of test completed (t-test) and whether it was significant
11. Statistical summary statement that looks like this: t(38) = 2.66; p < 0.05
12. Provide exact p value
Problem 4:
Stevenson manufactures air conditioners in the United States and in Japan. He wanted to know whether there was a difference in the turnover rates in his Japanese versus American plants. (Note: A turnover rate of zero would mean that the same employees work at the plant year after year – it would have a “true zero”). Please interpret this Excel output for Stevenson

- **Independent Variable:**
  - Group 1:
  - Group 2:

- **Dependent Variable:**
  - Mean for Group 1:
  - Mean for Group 2:

- State the null hypothesis: **There is no difference between**

- If we reject the null we are stating that: **There is a difference between**

- Is this a quasi or true experiment? ______________

- Is this a between or within participant design? ______________

- The level of measurement for the independent variable is: (Nominal, ordinal, interval or ratio) ______________

- The level of measurement for the dependent variable is: (Nominal, ordinal, interval or ratio) ______________

- Sample size total is: _____

- Sample size “Japan plants”: _____

- Sample size “USA plants”: _____

- Degrees Freedom total: _____

- Degrees Freedom “Japan plants”: _____

- Degrees Freedom “USA plants”: _____

- Value for the observed t-statistic is: ____________ (“t Stat”)

- Is the observed score bigger than the critical score? ______

- Value for the critical t-statistic is: ____________ (“t Critical two-tail”)

- Do we “reject the null”? ______

- Is p < 0.05? ______

- What is the exact p value: ____________ (“P(T<=t) two-tail”)

- Was it a significant difference: ____________

- State the alpha level ____________ (alpha = 0.05)

Interpret and report your t-test results in proper form. Construct a brief summary of your results comparing the two groups. Remember there are four parts to this summary

13. List independent and dependent variables, and means for the two groups
14. Describe type of test completed (t-test) and whether it was significant
15. Statistical summary statement that looks like this: t(38) = 2.66; p < 0.05
16. Provide exact p value

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