Lab 4 Worksheet - Evaluating a Claim II (24 Points)

1. Predict whether the claim should be true or false.

2 Points - The claim is stated to be either true or false.
0 Points - The claim is NOT stated to be either true or false.

2. Provide reasons for why you think the claim should be true or false.

2 Points - Reasonable reasons are given.
0 Points - No attempt was made or no reasons were given.

3. Show the results of your Running Average.

4 Points - BOTH of the following are true: (1) there is a screenshot of the running average from the spreadsheet, (2) a reasonable change in average was identified and reached.
2 Points - Only ONE of the following is true: (1) there is a screenshot of the running average from the spreadsheet, (2) a reasonable change in average was identified and reached.
0 Points - NEITHER of the following is true: (1) there is a screenshot of the running average from the spreadsheet, (2) a reasonable change in average was identified and reached.

4. Include a screenshot of your velocity vs time graph.

2 Points - BOTH of the following are true: (1) a professional looking screenshot is included, (2) the graph is zoomed in to show all the details.
1 Points - Only ONE of the following is true: (1) a professional looking screenshot is included, (2) the graph is zoomed in to show all the details.
0 Points - A screenshot is not included OR the screenshot is taken of the computer screen with a phone camera or similar.

5. On the velocity vs time graph, identify the portion of the graph when the device is moving up and the portion of the graph when the device is moving down.

2 Points - BOTH of the following are true: (1) the portion of the graph when the device is moving uphill is clearly identified, (2) the portion of the graph when the device is moving downhill is clearly identified.
1 Point - Only ONE of the following is true: (1) the portion of the graph when the device is moving uphill is clearly identified, (2) the portion of the graph when the device is moving downhill is clearly identified.

0 Points - NEITHER of the following is true: (1) the portion of the graph when the device is moving uphill is clearly identified, (2) the portion of the graph when the device is moving downhill is clearly identified.

6. Record your average uphill acceleration in the format of mean ± standard error of the mean.

2 Points - BOTH of the following are true: (1) the data is in the form of mean ± standard error of the mean, (2) appropriate units are used.
1 Point - Only ONE of the following is true: (1) the data is in the form of mean ± standard error of the mean, (2) appropriate units are used.
0 Points - NEITHER of the following is true: (1) the data is in the form of mean ± standard error of the mean, (2) appropriate units are used.

7. Record your average downhill acceleration in the format of mean ± standard error of the mean.

2 Points - BOTH of the following are true: (1) the data is in the form of mean ± standard error of the mean, (2) appropriate units are used.
1 Point - Only ONE of the following is true: (1) the data is in the form of mean ± standard error of the mean, (2) appropriate units are used.
0 Points - NEITHER of the following is true: (1) the data is in the form of mean ± standard error of the mean, (2) appropriate units are used.

8. Compare the two accelerations graphically with error bars. (See the video in the instructions.

2 Points - BOTH of the following are true: (1) the two accelerations are represented with a dot, (2) the accelerations have error bars that can be compared with an appropriate y-axis.
1 Point - Only ONE of the following is true: (1) the two accelerations are represented with a dot, (2) the accelerations have error bars that can be compared with an appropriate y-axis.
0 Points - NEITHER of the following is true: (1) the two accelerations are represented with a dot, (2) the accelerations have error bars that can be compared with an appropriate y-axis.

9. Explain how you performed the t test to evaluate the claim.

2 Points - There is an accurate description of how the t test was performed.
0 Points - There is an inaccurate description of how the t test was performed.

10. Based on the t test, state whether the claim is true or false and why.

4 Points - BOTH of the following are true: (1) the claim is stated as either true or false, (2) there is an accurate explanation for the result.

2 Points - Only ONE of the following is true: (1) the claim is stated as either true or false, (2) there is an accurate explanation for the result.

0 Points - NEITHER of the following is true: (1) the claim is stated as either true or false, (2) there is an accurate explanation for the result.