

## Lab 3 Worksheet - Evaluating a Claim I (24 Points)

1. What distance does the iOLab device roll?

**2 Points** - The distance is stated with units of centimeters or meters.

**0 Points** - The distance is NOT stated with units of centimeters or meters.

2. What is the mass of the iOLab device?

**4 Points** - BOTH of the following are true: (1) the mass of the iOLab device is stated in units of grams or kilograms, (2) the stated mass is accurate or within 5% of the true value.

**2 Points** - Only ONE of the following is true: (1) the mass of the iOLab device is stated in units of grams or kilograms, (2) the stated mass is accurate or within 5% of the true value.

**0 Points** - NEITHER of the following is true: (1) the mass of the iOLab device is stated in units of grams or kilograms, (2) the stated mass is accurate or within 5% of the true value.

3. What is the mass of your suspended mass?

**2 Points** - The mass is stated with units of grams or kilograms.

**0 Points** - The mass is NOT stated with units of grams or kilograms.

4. What final velocity should the iOLab device have? Show your work to ensure maximum credit.

**4 Points** - BOTH of the following are true: (1) the final velocity is stated in units of m/s, (2) the final velocity was calculated accurately.

**2 Points** - Only ONE of the following is true: (1) the final velocity is stated in units of m/s, (2) the final velocity was calculated accurately.

**0 Points** - NEITHER of the following is true: (1) the final velocity is stated in units of m/s, (2) the final velocity was calculated accurately.

5. 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) the final change in average is 0.1% or less.

**2 Points** - Only ONE of the following is true: (1) there is a screenshot of the running average from the spreadsheet, (2) the final change in average is 0.1% or less.

**0 Points** - NEITHER of the following is true: (1) there is a screenshot of the running average from the spreadsheet, (2) the final change in average is 0.1% or less.

6. How many trials did you have to perform?

**2 Points** - The number of trials stated corresponds to the number of trials performed in question 5.

**0 Points** - The number of trials stated does NOT correspond to the number of trials performed in question 5.

7. Show the results of your z test.

**2 Points** - BOTH of the following are true: (1) there is a screenshot of the z test from the z score spreadsheet, (2) the screenshot shows all of the following: Standard Deviation,  $x$ ,  $\langle x \rangle$ , z Score, and the probabilities.

**1 Point** - Only ONE of the following is true: (1) there is a screenshot of the z test from the z score spreadsheet, (2) the screenshot shows all of the following: Standard Deviation,  $x$ ,  $\langle x \rangle$ , z Score, and the probabilities.

**0 Points** - NEITHER of the following is true: (1) there is a screenshot of the z test from the z score spreadsheet, (2) the screenshot shows all of the following: Standard Deviation,  $x$ ,  $\langle x \rangle$ , z Score, and the probabilities.

8. Based on your z test, is the claim true or false. Explain your reasoning to ensure maximum credit.

**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.