

Houston Restaurant

Data were collected on the amount spent by 64 customers for lunch at a major Houston restaurant. These data are contained in excel file named Houston ↓. Based upon past studies, the population standard deviation is known to be \$6.00. (This is population standard deviation known case).

You can use descriptive statistics in the data analysis ToolPak to calculate the sample mean or calculate the mean of the sample using the AVERAGE function in excel.

σ - known
We can use MOE formula
or confidence norm in excel

$$\$21.52 \pm 1.935$$

At 99% confidence, what is the margin of error?

1.935

2 Essay 2 points

What are the confidence interval values at a 99% confidence level.

Edit View Insert Format Tools Table

12pt Paragraph

\$19.56 ; \$23.46



3 Numeric 1 point

Corporate Bonds

A sample containing years to maturity and yield for 40 corporate bonds is contained in the Corporate Bonds ↓ excel file. (This is a population standard deviation unknown case).

You can calculate the sample mean, sample standard deviation, and margin of error using Descriptive Statistics in the Data Analysis ToolPak.

σ - unknown
using data analysis toolpack
in excel: Descriptive
statistics

What is the sample mean years to maturity for corporate bonds?

9.7063

4 Essay 3 points

What are the confidence interval values at a 95% confidence level.

Edit View Insert Format Tools Table

12pt Paragraph

7.1539 ; 12.2585 years



I suggest viewing the video regarding confidence intervals for proportions before this homework question.

Suppose that 60 percent of 1,000 randomly selected U.S. adults say that they browse a social media site while at work. Based on this finding, find a 95 percent confidence interval for the proportion of all U.S. adults who would say that they browse social media while at work. Based on this interval, is it reasonable to conclude that more than 50 percent of all U.S. adults would say browse social media while at work? Please explain your rationale.

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12pt Paragraph B I U A L T² :

MOE: 0.0303

\hat{p} : 0.60

$\hat{p} \pm \text{MOE}$ 0.5697; 0.6303
 since the entire confidence interval is above 50%,
 it is reasonable to conclude that more than
 50% of American adults engage in
 daily physical activity.

Stimulus

Hypothesis Testing

Please write the null and alternative hypothesis for the following statements. Using the guide from the video for setting up the mathematical conversions of statements discussed in class.

6 Multiple Choice 1 point

The _____ hypothesis is not rejected unless there is sufficient sample evidence to do so.

- ☐ Alternative
☒ Null

7 Multiple Choice 1 point

The _____ hypothesis will be accepted only if there is convincing sample evidence that it is true.

- ☒ Alternative
☐ Null

8 True or False 1 point

The null hypothesis is a statement that will be accepted only if there is convincing sample evidence that it is true.

- ☐ True
☒ False

9 True or False 1 point

Based on a random sample of 25 units of product X, the average weight is 102 lbs. and the sample standard deviation is 10 lbs. We would like to decide whether there is enough evidence to establish that the average weight for the population of product X is greater than 100 lbs. Assume the population is normally distributed. One way of expressing the null hypothesis is $H_0: \mu = 100$.

- ☒ True
☐ False

10 True or False 1 point

Based on a random sample of 25 units of product X, the average weight is 102 lbs. and the sample standard deviation is 10 lbs. We would like to decide if there is enough evidence to establish that the average weight for the population of product X is greater than 100 lbs. The alternative hypothesis can be written as $H_A: \mu > 100$. (Assume the population is normally distributed.)

- ☒ True
☐ False

11 Essay 2 points

Please write the null and alternative hypothesis for the following statement (you can use the insert math equation prompt to make it easier).
An advertiser for a popular weight loss clinic suggests that participants in their new diet program lose on average more than 10 pounds. A competitor wants to determine if these claims are valid.

Edit View Insert Format Tools Table

12pt Paragraph

$$H_0: \mu \leq 10 \text{ lbs.}$$
$$H_a: \mu > 10 \text{ lbs.}$$



12 Essay 2 points

Please write the null and alternative hypothesis for the following statement (you can use the insert math equation button to make it easier). A research analysts disputes a trade group's prediction that back-to-school spending will average \$606.40 per family this year. The researcher believes that average back-to-school spending will significantly differ from this amount.

Edit View Insert Format Tools Table

12pt Paragraph

$$H_0: \mu = \$606.40$$
$$H_a: \mu \neq \$606.40$$



13 File Upload 0 points

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Use this space to upload any files to show your work. This can include the excel sheets or any other documentation of work.



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