One Sample t-Test and CI

Use to estimate the population mean from a sample (confidence interval for the mean) or perform a hypothesis test for a mean (one sample t-Test).

Confidence Interval for the Mean

1. From an open JMP® data table, select Analyze > Distribution.
2. Select one or more continuous variables from Select Columns, click Y, Columns (continuous variables have blue triangles), and click OK.

The Upper 95% Mean and Lower 95% Mean give the 95% confidence interval for the true mean (39.163 and 38.01).

Tips:

- To change the display from vertical to horizontal (as shown), click on the top red triangle and select Stack.
- To change the confidence level, request a one-sided confidence limit or specify sigma, click on the red triangle for the variable, select Confidence Interval, and select the confidence level or click Other.

One Sample t-Test for the Mean

1. From the Distributions report window (shown above), click on the red triangle for the variable and select Test Mean.
2. Enter the hypothesized value under Specify Hypothesized Mean, and click OK.

JMP will generate:

- The t-Ratio (next to Test Statistic).
- P-values for the two-tailed and one-tailed tests.
- A graph to aid in interpreting the p-values, showing the hypothesized mean (center of the curve) and the sample mean (red line).

Interpretation of p-values for this example (using a significance level of 0.05):

1. Prob > |t| is less than 0.05 - reject the null hypothesis that the true mean is 40. This is the two-tailed test. Conclude that the true mean is not 40.
2. Prob > t is greater than 0.05 - fail to reject the null hypothesis that the true mean is <= 40. This is a one-tailed test. There is insufficient evidence to reject the null hypothesis.
3. Prob < t is less than 0.05 - reject the null hypothesis that the true mean is >= 40. Conclude that the true mean is less than 40.

Notes: To explore how the p-value changes as a function of the difference between the hypothesized mean and the sample mean, click on the red triangle next to Test Mean and select PValue animation. See the Basic Analysis book (under Help > Books) for more details. If working with summary statistics instead of raw data, use a calculator under Help > Sample Data > Calculators (under Teaching Resources).