

1-Sample t-Test

An economist wants to determine whether the monthly energy cost for families has changed from the previous year, when the mean cost per month was \$200. The economist randomly samples 25 families and records their energy costs for the current year. The economist performs a 1-sample t-test to determine whether the monthly energy cost differs from \$200.

1. Open the sample data, *FamilyEnergyCost.MTW*.
2. Choose **Stat > Basic Statistics > 1-Sample t**.
3. From the drop-down list, select **One or more samples, each in a column** and enter *Energy Cost*.
4. Select **Perform hypothesis test**, and in **Hypothesized mean**, enter *200*.
5. Click the **Graphs** button, and then select **Histogram**. Click **OK** in each dialog box.

Interpreting the results

The null hypothesis states that the mean of the energy costs is \$200. Because the p-value is 0.000, which is less than the significance level of 0.05, the economist rejects the null hypothesis and concludes that the average monthly energy cost for families differs from \$200. The 95% CI indicates that the population mean is likely to be greater than \$200.

Descriptive Statistics

N	Mean	StDev	SE Mean	95% CI for μ
25	330.6	154.2	30.8	(266.9, 394.2)

Test

T-Value	P-Value
4.23	0.000

