

Elementary Statistics
Hypothesis Testing for the Mean Worksheet (Day 2)

Find the critical value(s) for each t-test.

1. Find the critical value for $\alpha = 0.05$ and $n = 10$ for a right-tailed test.

2. Find the critical value for $\alpha = 0.10$ and $n = 18$ for a two-tailed test.

3. Find the critical value for $\alpha = 0.01$ and $n = 6$ for a left-tailed test.

4. Find the critical value for $\alpha = 0.025$ and $n = 9$ for a right-tailed test.

5. Find the critical value for $\alpha = 0.05$ and $n = 15$ for a two-tailed test.

6. Find the critical value for $\alpha = 0.005$ and $n = 23$ for a left-tailed test.

7. Find the critical value for $\alpha = 0.01$ and $n = 28$ for a two-tailed test.

8. Find the critical value for $\alpha = 0.02$ and $n = 17$ for a two-tailed test.

Complete a full hypothesis test for the mean using a t-test. Include the hypotheses, critical value(s), test value and graph, your decision to accept or reject, and a summary of the information.

9. A study found that cat owners spend an average of \$179 annually in routine vet visits. A random sample of ten cat owners spent an average of \$205 with a sample standard deviation of \$26. Is there a significant statistical difference at the $\alpha = 0.01$ level?

Complete a full hypothesis test for the mean using a t-test. Include the hypotheses, critical value(s), test value and graph, your decision to accept or reject, and a summary of the information.

10. A study claimed the average number of acres for private hunting ground is less than 2000 acres. A random sample of five properties is selected, with the acreage listed below. At the $\alpha = 0.05$, Is there enough evidence to support this claim?

959

1187

493

6249

541

Complete a full hypothesis test for the mean using a t-test. Include the hypotheses, critical value(s), test value and graph, your decision to accept or reject, and a summary of the information.

11. The average amount of taxes paid by a family of four is \$4172. A random sample of 20 families found that an average of \$4560 was paid in taxes with a standard deviation of \$1590. At $\alpha = 0.10$, is there evidence to support that families pay more than the national average of \$4172?

Use a calculator to complete the following t-test using the P-Value method. Include the hypotheses, p-value, a sketched graph, your decision to accept or reject, and a summary of the information.

12. An auto repair shop believes that people travel more than 3500 miles between oil changes. A random sample of 8 cars traveled a mean distance of 3575 miles between oil changes with a standard deviation of 125 miles. At $\alpha = 0.05$, is there enough evidence to support the shop's claim?

13. A travel agency claims that the average food expense for two adults traveling together on vacation is \$105. A random sample of 20 groups of adults has a mean food expense of \$110 and a standard deviation of \$8.50. Is there enough evidence to reject the claim at $\alpha = 0.01$?