

1.

Suppose you are a buyer of large supplies of light bulbs. You want to test, at the 5% significance level, the manufacturer's claim that his bulbs last more than 800 hours. You test 36 bulbs and find that the sample mean is 816 hours and the sample standard deviation is 70 hours. Should you accept the claim?

n = 36
Samp(average) = 816.000
s = 70.000
1-alpha = 0.950
alpha = 0.050

Ho: Pop(average) = 800
Ha: Pop(average) > 800
TS: 1.371428571
CV: 1.645

2.

In justifying their demand for higher wages, the employees in the shipping department of a large mail order house report that on the average, the department completes an order in 13 minutes. As a general manager for this firm, what can you conclude if a sample of 400 orders shows an average completion time of 14 minutes with a standard deviation of 10 minutes? Use a .05 level of significance.

n = 400
Samp(average) = 14.000
s = 10.000
1-alpha = 0.950
alpha = 0.050
alpha/2 = 0.025
df = 399

Ho: Pop(average) = 13
Ha: Pop(average) NOT : 13.000
TS: 2
CV: 1.965927296

3.

In investigating several complaints concerning the weight of the "NET WT. 12 OZ." jar of a local brand of jam, the Better Business Bureau selected a sample of 36 jars. It showed an average net weight of 11.92 ounces with a standard deviation of .3 ounce. Using a .01 level of significance, what would the Bureau conclude about the operation of the local firm?

n = 36
Samp(average) = 11.920
s = 0.300
1-alpha = 0.990
alpha = 0.010
alpha/2 = 0.005

Ho: Pop(average) = 12
Ha: Pop(average) NOT : 12.000
TS: -1.6
CV: -2.576

4.

A certain printing press is known to turn out an average of 45 copies a minute. In an attempt to increase its output, an alteration is made to the machine, and then in 3 short runs it turns out 46, 47, and 48 copies in a minute. Is this increase statistically significant, or is it likely to be simply the result of the .05 level of significance?

n = 3
Samp(average) = 47.000
s = 1.000
1-alpha = 0.950
alpha = 0.050
deg of freedom = 2

Ho: Pop(average) = 45
Ha: Pop(average) > 45.000
TS: 3.464101615
CV: 4.303

5.

Past experience has shown that the scores of students who take a certain mathematics test are normally distributed with mean 75 and variance 36. The Mathematics Department members would like to know whether this year's of 16 students is typical. They test this year's students and find the average score is 82. What conclusion should be drawn?

n = 16
Samp(average) = 82.000
s = 6.000
0.207227194
alpha = 0.050
alpha/2 = 0.025
deg of freedom 15

Ho: Pop(average) = 75
Ha: Pop(average) NOT : 75.000
TS: 4.666666667
CV: 2.490

6.

Among 11 patients in a certain study, the standard deviation property of interest was 5.8. In another group of 4 patients the standard deviation was 3.4. We wish to construct a 95 percent confidence interval for the ratio of the variances of these two populations .

m = 11
n = 4
s01 = 5.800
s02 = 3.400
1-alpha = 0.950
alpha = 0.050
alpha/2 = 0.025
deg of freedom_01 = 10
deg of freedom_02 = 3

var01 = 33.64
var02 = 11.56
F_left = 0.069353216
F_right = 4.825621493
var01/var02 = 2.910034602

0.2 <= 2.910034602C 14.04273