# CH9 90% confidence interval - Baseball2012



For the baseball team, the point estimate is sample mean wins of 81. It is best estimate of population mean wins. The sample size is 30.

90% of confidence, the baseball team population mean wins is between 77.3 and 84.7.

# CH9 95% confidence interval – Goodyear Chicago



For the Goodyear house sales in Chicago, the point estimate is sample mean house price of 221.103 thousands dollar. It is best estimate of population mean house price. The sample size is 105.

95% of confidence, the Chicago Goodyear population mean price is between 211.99 thousands dollar and 230.22 thousands dollar per house.

# CH9 99% confidence interval – International



For the countries in the world, the point estimate is sample mean life expectancy of 73.81 years. It is best estimate of population mean life expectancy in the world. The sample size is 46.

99% of confidence, the world population mean life expectancy is between 71.07 years and 76.54 years.

# CH10 44

Following values are provided:

x̄= 64, σx̄=8.8, n=36, α =.10

Stating two hypotheses as follows:

H0: μ>=69 H1: μ<69

By α =.10 and degree of freedom is 35, found by n-1, we can get the critical t value 1.306. Since it is an one-tailed test, the rejection region is occurred in the area of less than -1.306.

We can get the t value by following formula:

t = (x̄- μ)/ (σx̄/√n ) = (64-69)/(8.8/√36) = -3.409

Clearly, t =-3.409 is smaller than critical value -1.306. **So H0 (null hypotheses) is rejected**.

**In the conclusion:** at the .10 level of significance, there is enough evidence to conclude that residents of Legacy Ranch use less water on average.

By the way, we can come to same conclusion by P-value. From Megastat, p-value is **.0008**. It is less than .10 level of significance. So **H0 (null hypotheses) is rejected.**

# CH10 50

1. Stating two hypotheses as follows:

H0: μ<= 220 H1: μ> 220



From the Megastat, we get **the p-value .4054**.

The p-value is more than .01 significance level. So, **we can’t reject H0 (null hypotheses).**

**In the conclusion:** with .01 significance level, we can not conclude that the mean selling price in the Goodyear, AZ, area is more than $220,000.

1. Stating two hypotheses as follows:

H0: μ<= 2,100 H1: μ> 2,100



From the Megastat, we get **the p-value .00000076**.

The p-value is less than .01 significance level. So, **we can reject H0 (null hypotheses).**

**In the conclusion:** with .01 significance level, we can conclude that the mean size of homes sold in the Goodyear, AZ, area is more than 2,100 square feet.

# CH10 52

a. Stating two hypotheses as follows:

H0: μ = 840 H1: μ ≠ 840



From the Megastat, we get **the p-value .0393**.

The p-value is more than .01 significance level. So, **we can’t reject H0 (null hypotheses).**

**In the conclusion:** at .01 significance level, we don’t have enough evidence to determine whether the mean number of miles bus traveled is equal to 840 in Buena School District.

b. Stating two hypotheses as follows:

H0: μ >= 500 H1: μ < 500



From the Megastat, we get **the p-value 1.23\*10-12**.

The p-value is less than .05 significance level. So, **we can reject H0 (null hypotheses).**

**In the conclusion:** at .05 significance level, we can conduct the mean bus maintenance cost is less than $500 in Buena School District.

# CH6 14 (3 days instead of 2 days)



1. The probability that all six arrive within 3 days is **0.735**.
2. The probability that exactly 5 arrive within 3 days is **0.232**.
3. The mean number of letters that will arrive within 3 days is **5.70**.
4. The variance is **0.285**, the standard deviation is **0.534**.

# CH6 54 (2 returns instead of 1)



1. Clearly it is not independent. The sampling is done without replacement. If you pick up one return, the left is 24 out of 25. So it is hypergeometric distribution.
2. **0.1502**. The probability exactly two of the four audited.
3. **0.16640**. The probability at least two of the four audited.