

Name:

Chapter 8: Women's Heights: Confidence Interval Lab II

Given: Heights of 100 Women (in inches)

59.4	71.6	69.3	65.0	62.9
66.5	61.7	55.2	67.5	67.2
63.8	62.9	63.0	63.9	68.7
65.5	61.9	69.6	58.7	63.4
61.8	60.6	69.8	60.0	64.9
66.1	66.8	60.6	65.6	63.8
61.3	59.2	64.1	59.3	64.9
62.4	63.5	60.9	63.3	66.3
61.5	64.3	62.9	60.6	63.8
58.8	64.9	65.7	62.5	70.9
62.9	63.1	62.2	58.7	64.7
66.0	60.5	64.7	65.4	60.2
65.0	64.1	61.1	65.3	64.6
59.2	61.4	62.0	63.5	61.4
65.5	62.3	65.5	64.7	58.8
66.1	64.9	66.9	57.9	69.8
58.5	63.4	69.2	65.9	62.2
60.0	58.1	62.5	62.4	59.1
66.4	61.2	60.4	58.7	66.7
67.5	63.2	56.6	67.7	62.5

Listed above are the heights of 100 women. Use a random number generator to randomly select 10 data values.

1. Calculate the sample mean and sample standard deviation. Assume that the population standard deviation is known to be 3.3 inches. With these values, construct a 90% confidence interval for your sample of 10 values. Write the confidence interval you obtained in the first space of the table below.
2. Now write your confidence interval on the board. As others in the class write their confidence intervals on the board, copy them into the table below:

90% Confidence Intervals

Discussion Questions

1. The actual population mean for the 100 heights given above is $\mu = 63.4$. Using the class listing of confidence intervals, count how many of them contain the population mean μ ; i.e., for how many intervals does the value of μ lie between the endpoints of the confidence interval?
2. Divide this number by the total number of confidence intervals generated by the class to determine the percent of confidence intervals that contains the mean μ . Write this percent below.
3. Is the percent of confidence intervals that contain the population mean μ close to 90%?
4. Suppose we had generated 100 confidence intervals. What do you think would happen to the percent of confidence intervals that contained the population mean?
5. When we construct a 90% confidence interval, we say that we are **90% confident that the true population mean lies within the confidence interval**. Using complete sentences, explain what we mean by this phrase.
6. Suppose you obtained the heights of 10 women and calculated a confidence interval from this information. Without knowing the population mean μ , would you have any way of knowing for certain if your interval actually contained the value of μ ? Explain.