Confidence interval example

For this example, the population of interest consists of the 1362 females who reported height (in inches) on the Math 160 student surveys from 2002 through 2008. The parameter of interest is the mean of the height distribution for the full population. This is the unknown value we will estimate using a sample statistic.

In order to construct a confidence interval using the tools we have at hand, we need to know the population standard deviation. (Note that this situation of knowing the population standard deviation without knowing the population mean rarely occurs in practice.) The standard deviation for the height distribution of the full population is $\sigma = 2.992$ inches.

You will build a 95% confidence interval using one of the samples given on the flip side.

1. Determine the size of your sample.

   $n =$

2. Show how to compute the mean of your sample.

   $\bar{x} =$

3. Compute the standard deviation of the sampling distribution.

   $\sigma_{\bar{x}} =$

4. Compute the margin of error for a 95% confidence interval. Use $z^* = 1.96$.

   $m =$

5. Compute the 95% confidence interval for your sample.

   $\bar{x} - m =$

   $\bar{x} + m =$

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9	Sample 10	Sample 11	Sample 12
66.00	68.00	68.00	62.00	65.00	63.00	64.00	64.00	65.00	64.00	67.00	68.00
68.00	68.00	63.00	64.00	63.00	64.00	67.00	61.00	66.00	68.00	63.00	67.00
67.00	67.00	67.00	67.00	66.00	67.00	66.00	66.00	66.00	63.00	67.00	67.00
67.00	63.00	65.00	66.00	63.00	70.00	65.00	64.00	67.00	67.00	63.00	65.00
64.00	67.00	66.00	67.00	67.00	62.00	62.00	60.00	62.00	67.00	65.00	69.00
71.00	62.00	65.00	67.00	66.00	65.00	66.00	65.00	63.00	66.00	64.00	71.00
64.00	65.00	67.00	62.00	66.50	69.00	68.50	64.00	62.00	64.00	61.00	68.00
63.00	59.00	62.00	68.00	65.00	60.00	68.00	65.00	66.00	66.00	65.00	68.00
71.50	65.00	69.00	56.00	66.00	68.00	67.00	64.00	64.00	63.00	63.00	67.00
68.00	62.00	66.00	64.00	64.50	62.00	64.00	62.00	68.00	68.00	69.00	68.00
Mean 66.95	64.60	65.80	64.30	65.20	65.00	65.75	63.50	64.90	65.60	64.70	67.80

Sample 13	Sample 14	Sample 15	Sample 16	Sample 17	Sample 18	Sample 19	Sample 20	Sample 21	Sample 22	Sample 23	Sample 24
62.00	68.00	65.00	69.00	64.00	62.00	66.00	65.00	64.00	63.00	65.00	68.00
63.00	66.00	63.00	64.00	64.00	64.00	62.00	63.00	67.00	72.00	68.00	65.00
66.00	65.00	68.00	65.00	66.00	67.50	68.00	67.00	65.00	72.00	66.00	63.00
64.00	70.00	64.00	63.00	65.00	70.00	65.00	67.00	69.00	63.00	60.00	66.00
63.00	65.00	62.00	67.00	66.00	68.00	62.50	63.00	72.00	67.00	65.00	68.00
68.00	67.00	67.00	65.00	64.00	64.00	66.00	67.00	65.00	67.00	65.00	63.00
67.00	69.00	60.00	70.00	69.00	67.00	67.00	62.00	65.00	63.00	66.00	62.00
64.00	64.00	68.00	64.50	63.00	66.00	67.00	67.00	64.00	71.00	67.00	66.00
64.00	70.00	71.00	63.00	68.00	59.00	60.00	63.00	65.00	68.00	65.00	66.00
63.00	64.00	64.00	63.00	66.00	66.00	63.00	68.50	66.00	60.50	69.00	66.00
Mean 64.40	66.80	65.20	65.35	65.50	65.35	64.65	65.25	66.20	66.65	65.60	65.30