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 μ of the height distribution for the full population. This is the unknown value we will estimate using a sample statistic.

Previously, you computed a confidence interval for the population mean μ using the fact that we knew the population standard deviation σ. In practice, we almost never know σ. As an estimate of σ, we use the sample standard deviation s.

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

1. Determine the size of your sample and the degrees of freedom for your sample.

   $n =$

   $df =$

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

   $\bar{x}=$

3. Show how to compute the standard deviation for your sample.

   $s=$

4. Compute the standard error of the sampling distribution.

   $\text{SE}_{\bar{x}} =$

5. Compute the margin of error for a 95% confidence interval. From Table D, you should find $t^* = 2.262$.

   $m =$

6. 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
StDev	2.852	3.026	2.150	3.622	1.378	3.367	2.017	1.900	2.079	1.955	2.406	1.549

	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
StDev	1.955	2.348	3.293	2.517	1.900	3.198	2.625	2.324	2.530	4.164	2.413	2.058