

Lab 6 Confidence Intervals, Home Costs

Names:

Student Learning Outcomes

- The student will calculate the 90% confidence interval for the mean cost of a home in the area in which this school is located.
- The student will interpret confidence intervals.
- The student will determine the effects of changing conditions on the confidence interval.

Collect the Data

Check the Real Estate section in your local newspaper. Record the sale prices for 35 or more randomly selected homes recently listed in the county.

NOTE: Many newspapers list them only one day per week. Also, we will assume that homes come up for sale randomly.

Pendleton Housing Data, May 2016, Prices in thousands:

142	275	119	349	150	349	310	135	182	135
127	235	235	215	159.9	82	265	205	172	219
144	375	135	199	124	99.9	185	165	198.5	71.2
158	299	169	220	239	139.9	167.5	179.9	221.9	103.9
154.9	230	324.8	147.5	144.9	154.9	135	215	149.5	175

Describe the Data

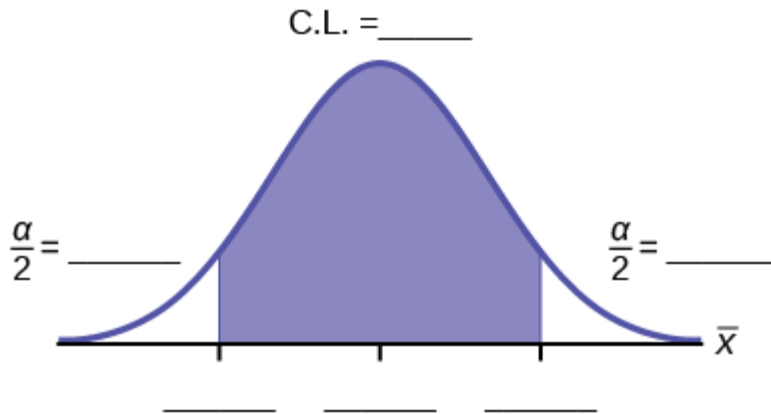
1. Compute the following:
 - a. $\bar{x} =$ _____
 - b. $s_x =$ _____
 - c. $n =$ _____
2. In words, define the random variable.
3. State the estimated distribution to use. Use both words and symbols.

Find the Confidence Interval

1. Calculate the confidence interval and the error bound.
 - a. Confidence Interval: _____
 - b. Error Bound: _____
2. How much area is in both tails (combined)? $\alpha =$ _____
3. How much area is in each tail? $\alpha/2 =$ _____

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4. Fill in the blanks on the graph with the area in each section. Then, fill in the number line with the upper and lower limits of the confidence interval and the sample mean.



5. Some students think that a 90% confidence interval contains 90% of the data. Use the list of data on the first page and count how many of the data values lie within the confidence interval. What percent is this? Is this percent close to 90%? Explain why this percent should or should not be close to 90%.

Describe the Confidence Interval

- In two to three complete sentences, explain what a confidence interval means (in general), as if you were talking to someone who has not taken statistics.
- In one to two complete sentences, explain what this confidence interval means for this particular study.

Use the Data to Construct Confidence Intervals

- Using the given information, construct a confidence interval for each confidence level given.

Confidence Level	EBM	Confidence Interval
50%		
80%		
95%		
99%		

- What happens to the EBM as the confidence level increases? Does the width of the confidence interval increase or decrease? Explain why this happens.