

Lesson 50: Computer Printouts

Environmentalists, gov. officials, and car makers study the exhaust emissions produced by motor vehicles. Researchers collected data on the nitrogen oxides (NOX) levels in grams/mile for a random sample of 40 light-duty engines of the same type. The mean NOX reading was 1.2675 and the standard deviation was 0.3332.

- Construct and interpret a 95% confidence interval for the mean amount of NOX emitted by light-duty engines of this type.
- The EPA sets a limit of 1 gram/mile for NOX emissions. Are you convinced that this type of engine has a mean NOX level of 1 or less?
- The original sample included 41 engines, but one was removed due to an extreme NOX level (2.94) due to a mechanical defect. The printout below shows the data with the engine included.

Descriptive Statistics: NOX

Variable	N	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
NOX	41	1.3083	0.0656	0.4201	0.5700	1.1000	1.3100	1.4700	2.9400

How would including the value affect the confidence interval? Find the confidence interval with this engine included. Does this change your answer to part b?

Daily Data Collection

Run a matched pair study and find a 95% confidence interval for the true mean difference in "The wrist size (in) of boys and girls with the same height (10 pairs of volunteers)"

Pair	Height (in)	Boy wrist size (in)	Girl wrist size (in)	Difference Boy – girl
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Use a spreadsheet to perform the following:

- Histogram to check for skewness and outliers in the data.
- Statistics on the differences: sample mean, S_x , t-value, MOE, lower, upper.
- Conclusion about wrist size.
- Test the claim: The wrist size of boys and girls is identical when their height is the same.

HW 50 (CH 8 Review): From 8R – 2b, 3, 5, 8, 9, 10 From 8T – 2, 3, 5, 7, 8, 10, 12, 13
Study for Quiz 15 over Lessons 48-50, review 19, 27