HW

Problem Set Lesson 5 Name_____ Hr__

Lesson Summary

- The standard deviation measures a typical deviation from the mean.
- To calculate the standard deviation,
  1. Find the mean of the data set;
  2. Calculate the deviations from the mean;
  3. Square the deviations from the mean;
  4. Add up the squared deviations;
  5. Divide by $n - 1$ (if you are working with a data from a sample, which is the most common case);
  6. Take the square root.
- The unit of the standard deviation is always the same as the unit of the original data set.
- The larger the standard deviation, the greater the spread (variability) of the data set.

1. A small car dealership tests the fuel efficiency of sedans on its lot. It chooses 12 sedans for the test. The fuel efficiency (mpg) values of the cars are given in the table below. Complete the table as directed below.

Fuel Efficiency (miles per gallon)	29	35	24	25	21	21	18	28	31	26	26	22
Deviation from the Mean												
Squared Deviation from the Mean												

a. Calculate the mean fuel efficiency for these cars. Show work.

b. Calculate the deviations from the mean, and write your answers in the second row of the table.

c. Square the deviations from the mean, and write the squared deviations in the third row of the table.

d. Find the sum of the squared deviations. Show work.

e. What is the value of n for this data set? Divide the sum of the squared deviations by $n - 1$. Show work.

f. Take the square root of your answer to (e) to find the standard deviation of the fuel efficiencies of these cars. Round your answer to the nearest hundredth.