**Assignment 3.3—part 3: p.108 -112 #14*, 42, 44*, 24**

14* Listed below are the amounts of mercury (in parts per million, or ppm) found in tuna sushi sampled at different stores in New York City. The study was sponsored by the *New York Times*, and the stores (in order) are D'Agostino, Eli's Manhattan, Fairway, Food Emporium, Gourmet Garage, Grace's Marketplace, and Whole Foods.

| Amounts of Mercury in Tuna Sushi (in ppm) | $x - \bar{x}$ | $\lvert x - \bar{x} \rvert$ |
|---|---|---|
| 0.56 | | |
| 0.75 | | |
| 0.10 | | |
| 0.95 | | |
| 1.25 | | |
| 0.54 | | |
| 0.88 | | |
| | $\sum(x - \bar{x}) =$ | $\sum \lvert x - \bar{x} \rvert =$ |

(If necessary, round all final answers to 3 decimal places)

a. Find the mean. (Round to 3 decimal places before using the mean in the calculations in the table)

$\bar{x} =$

b. Find the mean absolute deviation.

$\frac{\sum |x - \bar{x}|}{n} =$

c. Find the standard deviation.

s =

d. Which is a better measure of variance? Explain.

42. Based on Data set 3 in Appendix B, body temperatures of healthy adults have a bell-shaped distribution with a mean of 98.20°F and a standard deviation of 0.62°F. Using the empirical rule, what is the approximate percentage of healthy adults with body temperatures…

a. within 1 standard deviation of the mean?

b. between 96.34°F and 100.06°F

44. Based on Data set 3 in Appendix B, body temperatures of healthy adults have a bell-shaped distribution with a mean of 98.20°F and a standard deviation of 0.62°F. Using Chebyshev's theorem, what do we know about the percentage of healthy adults with body temperatures that are within 3 standard deviations of the mean? What are the maximum and minimum body temperatures that are within 3 standard deviations of the mean?

*Would it be more appropriate to use the empirical rule or Chebyshev's Theorem to determine the percent of values within 3 standard deviations of the mean? Why?

24. Waiting times (in minutes) of customers at the Jefferson Valley Bank (where all customers enter a single waiting line) and the Bank of Providence (where customers wait in individual lines at 3 different teller windows) are listed below:

Jefferson Valley (single line): 6.5 6.6 6.7 6.8 7.1 7.3 7.4 7.7 7.7 7.7

Providence (individual lines): 4.2 5.4 5.8 6.2 6.7 7.7 7.7 8.5 9.3 10.0

Find the coefficient of variation for each of the two samples then compare the variation.

$$CV = \frac{s}{\bar{x}} \cdot 100$$