13-3A Lesson Master

SKILLS Objective C

In 1–4, a data set contains 20 elements, \(d_1\) through \(d_{20}\). Tell what each expression represents.

1. \(\sum_{i=1}^{20} d_i\) ________________
2. \(\frac{1}{20} \sum_{i=1}^{20} d_i\) ________________
3. \(\frac{1}{20} \sum_{i=1}^{20} |d_i - \mu|\) ________________
4. \(\sqrt{\frac{1}{20} \sum_{i=1}^{20} (d_i - \mu)^2}\) ________________

In 5 and 6, a data set contains \(n\) elements, \(a_1\) through \(a_n\). Give an expression for each measure.

5. the mean ________________
6. the standard deviation ________________

USES Objective I

7. Tess’s percentage scores on her math tests for the semester are 78, 91, 84, 87, and 85.
   a. Find the mean. ________________
   b. Find the deviations from the mean. ________________
   c. Find the mean absolute deviation. ________________
   d. Find the standard deviation. ________________
   e. What score does she need on the last test to earn an 86.5% average for the semester? ________________

8. The table at the right shows the mean income of U.S. households when divided into fifths. For example, the mean income of the lowest fifth of households was $9714 in 1985 and $10,655 in 2005. The numbers are adjusted for inflation so they can be compared.
   a. Find the mean of each year’s data for all households. ________________
   b. Find the standard deviation of each year’s data. ________________
   c. Explain how income and distribution changed from 1985 to 2005. ________________