

## Standard Deviation Practice Problems (with answers)

1. Consider the following three data sets A, B and C.

$$A = \{9,10,11,7,13\}$$

$$B = \{10,10,10,10,10\}$$

$$C = \{1,1,10,19,19\}$$

- Calculate the mean of each data set.
- Calculate the standard deviation of each data set.
- Which set has the largest standard deviation?

2. The frequency table of the monthly salaries of 20 people is shown below.

Salary (in \$)	Number of people with this salary
3500	5
4000	8
4200	5
4300	2

- Calculate the mean of the salaries of the 20 people.
- Calculate the standard deviation of the salaries of the 20 people.

## Multiple Choice Questions

### Descriptive Statistics - Summary Statistics

1. Last year a small statistical consulting company paid each of its five statistical clerks \$22,000, two statistical analysts \$50,000 each, and the senior statistician/owner \$270,000. The number of employees earning less than the mean salary is:
  - (a) 0
  - (b) 4
  - (c) 5
  - (d) 6
  - (e) 7

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2.

In general, which of the following statements is FALSE?

- (a) The sample mean is more sensitive to extreme values than the median.
- (b) The sample range is more sensitive to extreme values than the standard deviation.
- (c) The sample standard deviation is a measure of spread around the sample mean.
- (d) The sample standard deviation is a measure of central tendency around the median.

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3. During the past few months, major league baseball players were in the process of negotiating with the team owners for higher minimum salaries and more fringe benefits. At the time of the negotiations, most of the major league baseball players had salaries in the \$100,000 – \$150,000 a year range. However, there were a handful of players who, via the free agent system, earned nearly three million dollars per year. Which measure of central tendency of players' salaries, the mean or the median, might the players have used in an attempt to convince the team owners that they (the players) were deserving of higher salaries and more fringe benefits?
- (a) Not enough information is given to answer the question.
  - (b) Either one, because all measures of central tendency are basically the same.
  - (c) Mean.
  - (d) Median.
  - (e) Both the mean and the median.

4. A financial analyst's sample of six companies' book value were

\$25, \$7, \$22, \$33, \$18, \$15.

The sample mean and sample standard deviation are (approximately):

- (a) 20 and 79.2 respectively
  - (b) 20 and 8.9 respectively.
  - (c) 120 and 79.2 respectively.
  - (d) 20 and 8.2 respectively.
  - (e) 120 and 8.9 respectively.
5. A sample of underweight babies was fed a special diet and the following weight gains (lbs) were observed at the end of three month.

6.7    2.7    2.5    3.6    3.4    4.1    4.8    5.9    8.3

The mean and standard deviation are:

- (a) 4.67, 3.82
- (b) 3.82, 4.67
- (c) 4.67, 1.95
- (d) 1.95, 4.67
- (e) 4.67, 1.84

6. The heights in centimeters of 5 students are:

165, 175, 176, 159, 170.

The sample median and sample mean are respectively:

- (a) 170, 169
- (b) 170, 170
- (c) 169, 170
- (d) 176, 169
- (e) 176, 176

7. The test scores on a college algebra test are as follows:

67 69 71 75 78 78 83 85 85 85 85 86 87 89 92 95 98 98 98 100 100 100 100 100  
100

a. Find the range of the data.

b. Find the interquartile range.

c. Find the mean of the data.

d. Find the standard deviation.

e. How many data values fall within 2 standard deviations of the mean?

f. What percent of the data lie within 1 standard deviation of the mean?