

Univariate Data Sets: Problem Set 1.3

Key

- 1) 🍏 You got an 82 on your first math test. The scores of the class (including yours) are ~~82~~, 91, ~~87~~, 100, 28, 72, ~~83~~, ~~77~~, 88, 84, ~~88~~, 84. This data set is called "Math Test Scores".
 mean: 80.1667
 median: 84

a. Write a sentence or two that convinces your parents that you did really well on this test.

Mom and Dad, I did really great on my first math test! I scored an 82 and the mean (average) was an 80!

b. Now write as if you are your parents and convince your son/daughter that they didn't do so well after all.

Well son/daughter. It looks like there is an outlier in that data of test scores. If I take out that score, the average is an 84 and your score is 2 points lower than that. You also only scored higher than 3 kids in your class.

- 2) In problem (1), assign each score to the variables with the index i , that is $s_1=82, s_2=91, \dots, s_{12}=84$.

$s_1=28$ $s_2=72$ $s_3=77$ $s_4=82$ $s_5=83$
 $s_6=84$ $s_7=84$ $s_8=86$ $s_9=87$ $s_{10}=88$ $s_{11}=91$
 $s_{12}=100$

a. Write an expression for the sum of the scores using sigma notation.

$$\sum_{i=1}^{12} s_i$$

b. Write an expression for the mean of the scores using sigma notation.

$$\frac{\sum_{i=1}^{12} s_i}{12} \quad \text{or} \quad \frac{1}{12} \sum_{i=1}^{12} s_i$$

- 3) Make up a data set of five data values in which mode is negative and \bar{x} is positive.

many different acceptable answers.

-5, -5, -5, 20, 30

$$\bar{x} = \frac{-5-5-5+20+30}{5} = \frac{35}{5} = 7$$

- 4) Make up a data set of five data values in which \bar{x} is negative and the mode is positive.

4, 4, 4, -20, -20

$$\bar{x} = \frac{-20-20+16}{5} = \frac{-40+16}{5} = \frac{-24}{5}$$

5) 🍏 In the 1996-97 basketball season, Michael Jordan earned \$30,140,000. The rest of the team's salaries can be seen by opening the Fathom file called "Chicago Bulls."

a. What is the mean salary of the team?

4,179,790

b. What is the median salary of the team?

1,170,000

c. If you read a newspaper story about the Chicago Bulls in 1996-97 that used the mean as a measure of center, what type of "spin" would the writer be trying to use?

If the writer used the mean they would be trying to convey that players for the Chicago Bulls are making a lot of money.

d. If you read a newspaper story about the Chicago Bulls in 1996-97 that used the median as a measure of center, what type of "spin" would the writer be trying to use?

If the writer used the median they would be trying to convey that players for the Chicago Bulls aren't making a lot of money.