

Variation in Data-Part 1

Learning Goals

Minds on Math...Thinking about Variation

Two students are in different classes.

Student A's mark was 89%; Student B's, 88%.

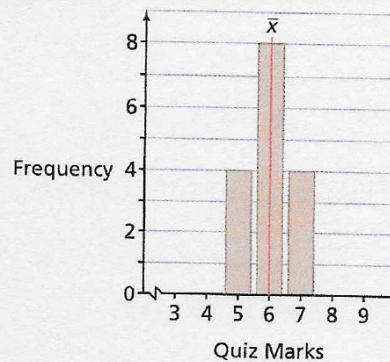
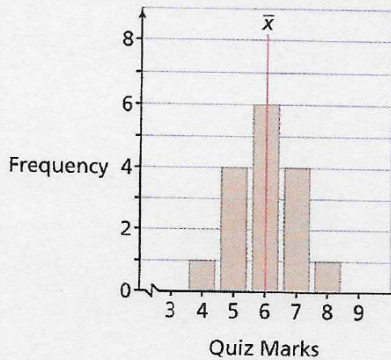
Minds on Math

Consider the following scenario:

In a group of test results, how different are the values 80 and 90? To answer the question, one must learn about the distribution of the data. If all the data are clustered around 85, with 80 and 90 at either extreme, the values would be considered very different. On the other hand, if the data values were dispersed from 40 to 100, 80 and 90 would not be so different.

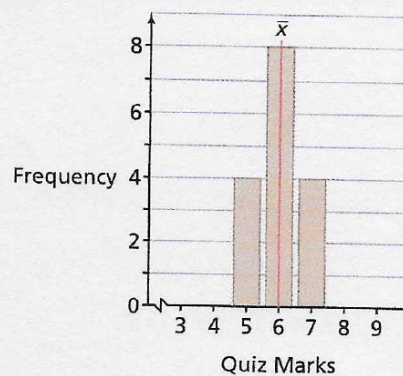
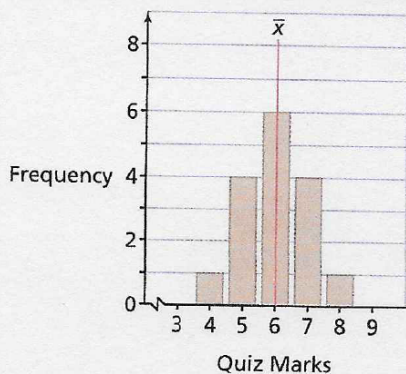
In this section, you will learn how to calculate numerical measures of spread and will use measures of spread to describe data sets.

How would you describe the difference between these two data sets?



While both have 16 elements and a mean of 6, the data appear more spread out on the left and more tightly clustered about the mean on the right.

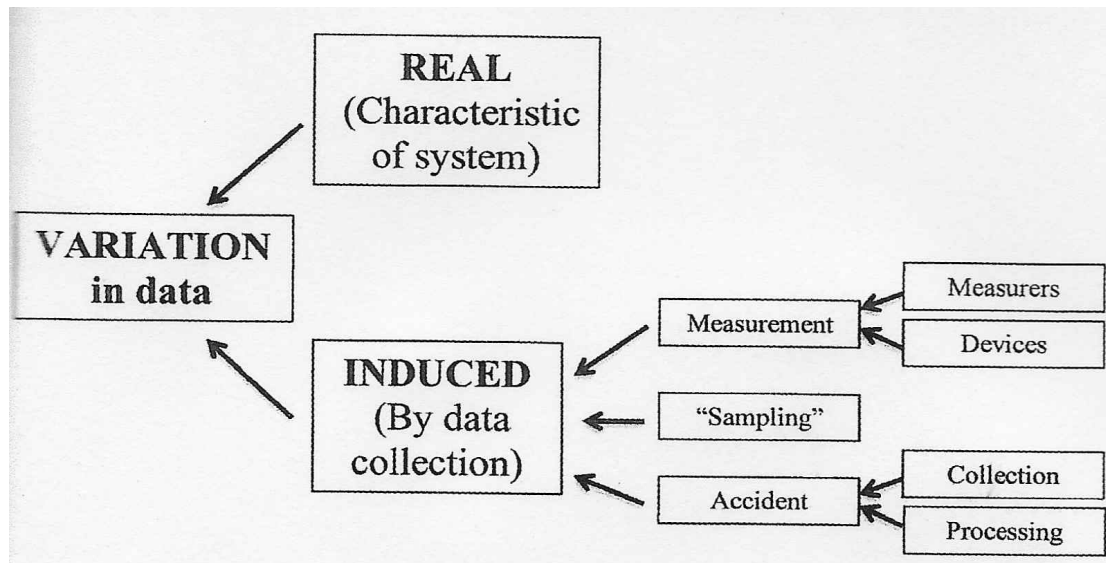
The terms *spread*, *dispersion*, and *variation* all refer to a measure of the way a data set is distributed about some central value. These measures will give us another numerical value that will allow us to describe a data set.



Q:

Minds on Math: Sources of Variation

What are some sources of variation in data?



Crites, T., & Thomas, S. L. (2015). *Putting essential understanding of statistics into practice in grades 9-12*. Reston, VA: NCTM.

Take Action: Variation Inquiry

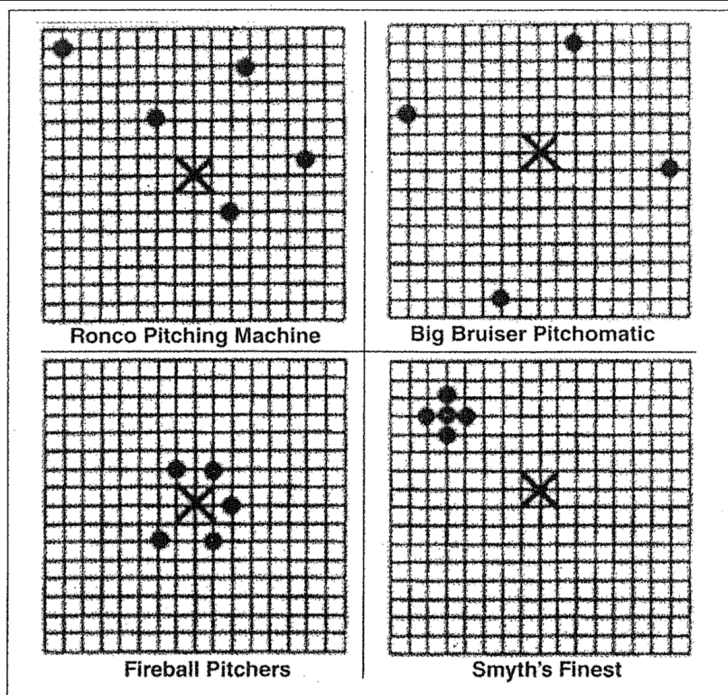
"Pitching Machines"

Instructions:

"The 'X' represents the target, and the black dots show where different pitches landed. Your task is to invent a procedure that computes a "quality" index for determining which of the pitching machines is best. There is no single way to do this, but you have to use the same procedure for each machine so that your comparison of the machines is fair. Write your procedure and the index value that you compute for each pitching machine."

Crites, T., & Thomas, S. L. (2015). *Putting essential understanding of statistics into practice in grades 9-12*. Reston, VA: NCTM.

Take Action: Pitching Machines (Grids)



Crites, T., & Thomas, S. L. (2015). *Putting essential understanding of statistics into practice in grades 9-12*. Reston, VA: NCTM.

Attachments

Variation Activity_Pitching Machines.docx