Measures of Central Tendency

Measures of central tendency are sometimes called averages.

- The **mean** is commonly called the average. It is the sum of a set of values divided by the number of values in the set.

$$\frac{1+1+2+3+4+4+4+5}{8} = \frac{24}{8} = 3.$$ The mean is 3.

- The **median** is the middle number in a set of data after the data has been arranged in ascending or descending order.

1, 1, 2, 3, 4, 4, 4, 5 There is an even number of data values. The median is the value halfway between the two middle numbers 3 and 4.
The median is 3.5.

- The **mode** is the most frequently occurring number in a set of data. A data set can have more than one mode.

1, 1, 2, 3, 4, 4, 4, 5 The mode is 4.

Give all answers to the nearest hundredth where necessary.

1. What are the mean, median, and mode for each data set?
a) 1, 2, 3, 5, 8, 8, 8, 15, 15
b) 4.2, 4.3, 4.3, 5, 5.1, 6.1, 7

2. Create a data set that has five values and a mode of 2.

3. Arrange the three measures of central tendency in order according to how easy it is to determine each one. Use an example to support your answer.

Calculating the Range

The **range** provides information about the spread of the data.
Range = highest value – lowest value

1, 1, 2, 3, 4, 4, 4, 5 The range is 5 – 1 = 4.

4. What is the range of each set of data?
a) 9, 8, 8, 3, 7
b) 16, 11, 7, 29, 31, 24, 18, 18, 18

5. If the lowest value in a set of data is 10 and the range is 7, what is the highest value in the set? Explain.

Name: _____ Date: _____

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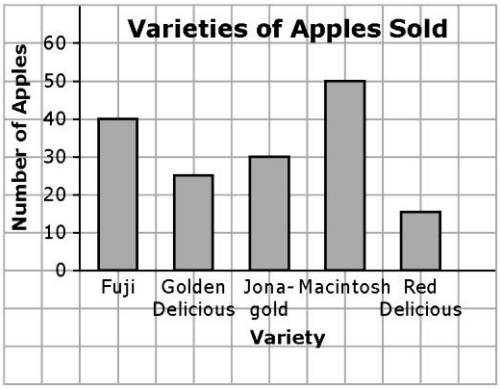
(continued)

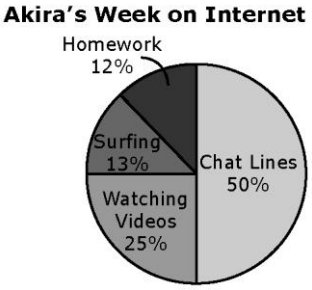
Representing Data

Data can be presented using graphs. Different graphs may display certain types of data better.

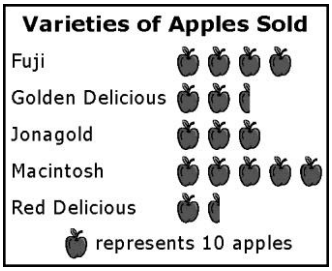
Bar graphs are best for comparing data across categories.



Circle graphs are best for comparing parts of a whole using percents.

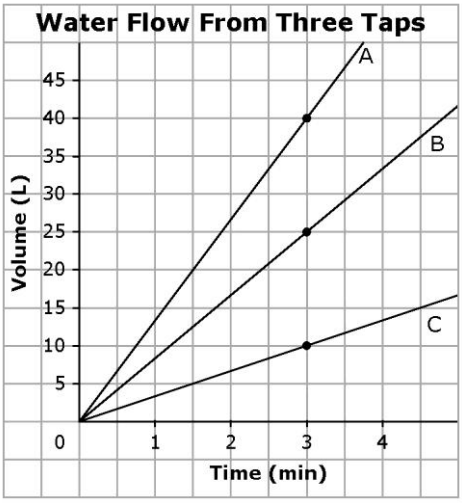


Pictographs are best for comparing data that can be easily counted.



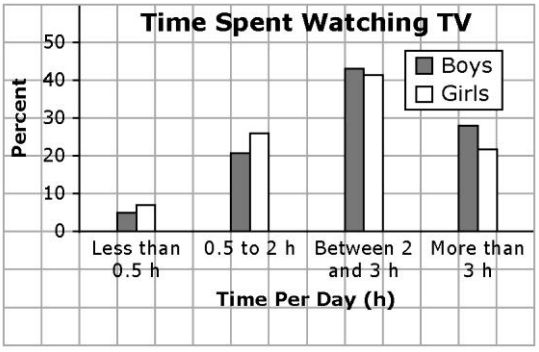
Line graphs are best for showing changes in data over time.

6. Truong recorded the water flow from three taps on a line graph.



a) Which tap flows the fastest?
b) What is the approximate total water flow from Tap B in 2 min?
c) What is the difference in the total flow after 3 min for Tap A and Tap C?

7. The school web site posted the results of a survey about television viewing habits of grade 9 students.



a) What percent of boys watch more than 3 h of TV per day?
b) What percent of girls watch 2 to 3 h of TV per day?
c) If the data in this graph is accurate, how many boys in a population of 500 boys would you expect to watch up to 2 h of TV per day?