

Advanced Challenge Level 1 Problem #24

Definitions: Given any set of data, the central tendency can be measured using the mean, the median, and/or the mode.

mean (also called the arithmetic mean): The mean of a set of n numbers is the sum of the numbers divided by n . In other words, the mean is simply another name for average.

median: The median of a set of numbers is the 'middle number'. To find the median, the numbers are arranged in order from the smallest to the greatest (or visa versa). If the set has an odd number of numbers, the median is easy to see. If the set has an even number of numbers, the median is the average of the two 'middle numbers'.

mode: The mode of a set of numbers is the number that occurs with the greatest frequency. (A set can have more than one mode or no mode at all.)

Find the mean, the median, and the mode for each of the following data sets.

- 60, 65, 70, 75, 80, 80, 85, 90, 90, 90, 90, 95, 95, 100, 100, 100
mean: _____ median: _____ mode: _____
- 70, 80, 80, 80, 80, 80, 80, 85, 85, 85, 90, 90, 90, 90, 95, 100
mean: _____ median: _____ mode: _____
- 30, 35, 35, 40, 50, 50, 50, 65, 70, 75, 85, 90, 100, 100, 100, 100
mean: _____ median: _____ mode: _____
- 20, 30, 40, 50, 80, 80, 80, 80, 80, 85, 85, 90, 90, 90, 95, 100
mean: _____ median: _____ mode: _____

For each of the following problems, you must write a list of 7 numbers that have the given characteristics. Make sure that you justify your answers by also giving the mean, the median, and the mode of each list of numbers. Please write the numbers in order from smallest to largest.

5. The mean is greater than the mode and also greater than the median.

_____, _____, _____, _____, _____, _____, _____

6. The mean is less than the mode and greater than the median.

_____, _____, _____, _____, _____, _____, _____

7. The mean is greater than the mode and equal to the median.

_____, _____, _____, _____, _____, _____, _____

8. The mean is equal to the mode and less than the median.

_____, _____, _____, _____, _____, _____, _____