

Unit 12 Study Guide

12.1

measure of central tendency

- a value that represents the centre of a set of data
- can be the mean, median, or mode

median

- the middle number in a set of data after the data have been arranged in order
- median of 2, 5, 6, 8, and 9 is 6
- median of 1, 3, 6, 8, 9, and 10 is 7

mode

- the most frequently occurring number in a set of data
- mode of 3, 5, 7, 7, and 9 is 7
- modes of 2, 2, 4, 6, 6, 8, and 11 are 2 and 6
- the data 1, 3, 4, and 5 has no mode

mean

- a measure of central tendency
- the sum of a set of values divided by the number of values in the set
- for example,

$$\text{Mean} = \frac{6 + 8 + 4}{3}$$

$$= 6$$

Key Ideas

- The mode is the most frequently occurring number in a set of data.
 - If no number repeats, there is no mode.
 $1 \ 2 \ 3 \ 4 \ 5$ No mode
 - There can be more than one mode.
 $1 \ 1 \ 2 \ 2 \ 3$ Two modes: 1 and 2 (bimodal)
- The median is the middle value in a set of data after the numbers have been arranged in order.
 $\cancel{1} \ \cancel{2} \ 3 \ \cancel{4} \ \cancel{5}$ Median is 3
- If there is an even number of data values, then the median is the value halfway between the two middle numbers.
 $\cancel{2} \ \cancel{4} \ 6 \ 8 \ \cancel{10} \ \cancel{12}$
 The median here is the value halfway between 6 and 8, or 7.
- The median does not have to be a number in the set of data.

$$\frac{6 + 8}{2} = \frac{14}{2} = 7$$

12.2

Key Ideas

- To calculate the mean, add all of the numbers in a set of data and then divide by the number of numbers.
- The mean does not have to be a number in the set of data.

$$\begin{aligned} \text{Mean} &= \frac{4 + 6 + 8 + 10 + 6 + 7 + 15}{7} \\ &= \frac{56}{7} \\ &= 8 \end{aligned}$$

12.3

Key Ideas

- Outliers can affect all measures of central tendency.
- When a small set of data has an outlier, the mean is usually affected more by the outlier than the median.
- Some outliers are just as important as the other data values, while others are better removed from the data set.

12.4

Key Ideas

- Outliers can affect all measures of central tendency.
- When a small set of data has an outlier, the mean is usually affected more by the outlier than the median.
- Some outliers are just as important as the other data values, while others are better removed from the data set.

12.5

Key Ideas

- The mode is the best measure of central tendency for data that represent frequency of choice such as favourite colour, clothing and shoe sizes, or most popular musical group.
- If all the numbers in a set of data are relatively close together, either the median or mean can be used as a measure of central tendency.
- If a data set contains unusually large or small numbers relative to the rest of the data, the median is usually the best measure of central tendency.