AChor/MBF3C **Name: _____**
Date: _____

Worksheet 8-5: Measures of Central Tendency

Measures of central tendency provide information on the centre of a set of data.

Common Measures of Central Tendency:

- **Mean**
  the sum of values in a set of data divided by the number of values in the set of data
  Note: Mean is actually the average value of all the values in the set of data.

$$\text{Mean} = \frac{\text{sum of all values}}{\text{number of values}}$$

- **Median**
  the middle value when data is ordered from least to greatest
  Note: If there is an even number of values, median is the average of the two middle values.

- **Mode**
  the value or attribute that occurs most often in the set of data
  Note: A set of data can have more than one mode or no mode.

1. Consider these test scores, all out of 100.

61, 76, 89, 72, 65, 71, 61, 83, 45, 68, 62, 59, 71, 68, 69, 86

(a) Find the mean score.

(b) Find the median score.

(c) Find the mode score.

Assigned Work: WS 8-5; p. 137 #2-3, #5, #7-8

2. Find the mean, the median, and the mode of each set of data. **Which measure of central tendency best describes the data? Explain.**

(a) Erika recorded the masses, in grams, of bags of cashews sold on Monday at her bulk food store.

58, 37, 37, 38, 42, 41, 46, 43, 41, 37, 38, 37

(i) Mean

(ii) Median

(iii)Mode

(b) The scores on a mathematics quiz, out of 100, are shown.

63, 71, 40, 99, 52, 94, 83, 67, 94, 89, 14, 76, 68

(i) Mean

(ii) Median

(iii)Mode

(c) The table shows the number of prizes and the value of each prize in a charity fundraiser.

Prize value ($)	Number of Prizes
5000	1
1000	4
500	8
10	80

(i) Mean

(ii) Median

(iii)Mode

3. The number of points scored by a basketball team at home games:

44, 36, 82, 53, 71, 74, 38, 81, 94, 58

(a) Mean

(b)Median

(c)Mode

4. The table shows the heights of grade 11 students at St. Andrew School.

Height *(cm)*	**Frequency** *(Number of Students)*
[155-160)	2
[160-165)	6
[165-170)	12
[170-175)	11
[175-180)	6
[180-185)	4
[185-190)	2

(a) Find the median height.

(b) Find the mode height.

(c) Find the range of heights.

(d) Which measure of central tendency best describes the data? Explain.

Answers: **1.** (a) 69.125, (b) 68.5, (c) 61, 68, 71**; 2.** (a) (i) 41.25g, (ii) 39.5g, (iii) 37g, mean best describes the central tendency because most of the values are close to the mean, median is not a value in the set of data, and mode is the least value in the set of data, (b) (i) 70, (ii) 71, (iii) 94, median is the best choice because it is not affected by outliers, and it is a value in the set of data, (c) (i) $148.39, (ii) $10, (iii) $10, even though median and mode are the same, mode is the best choice because of the frequency of the $10 prize**;**
3. (a) 63.1, (b) 64.5 (c) no mode**; 4.** (a) [170-175), (b) [165-170), (c) 35 cm (190 cm – 155 cm), (d) The median is the best measure of central tendency; most values are within 10 cm of it**.**