Practice Set 5 Measuring Central Tendency of Grouped Data

I. Label the top row of this Walkman sales data chart and calculate these measures of central tendency.

Array of Walkman sales data from page 6

8, 12, 14, 15, 16, 16, 17, 17, 21, 22, 29

A. Grouped mean

$$\bar{X} = \frac{\sum fx}{n} = \frac{187}{11} = 17$$

B. Grouped median

$$\frac{n}{2} = \frac{11}{2} = 5.5$$

$$L + \frac{\frac{n}{2} - CF_b}{f}(i)$$

$$= 14.5 + \frac{\frac{11}{2} - 3}{5}(5)$$

$$= 14.5 + \frac{2.5}{5}(5)$$

$$= 14.5 + 2.5 = 17$$

Darin's Music Emporium
Walkman Sales Data

Stated Class Limits	Frequency (f)	x	fx
5 - 9	1	7	7
10 - 14	2	12	24
15 - 19	5	17	85
20 - 24	2	22	44
25 - 29	1	27	27
	n = 11		$\Sigma fx = 187$

C. Grouped mode

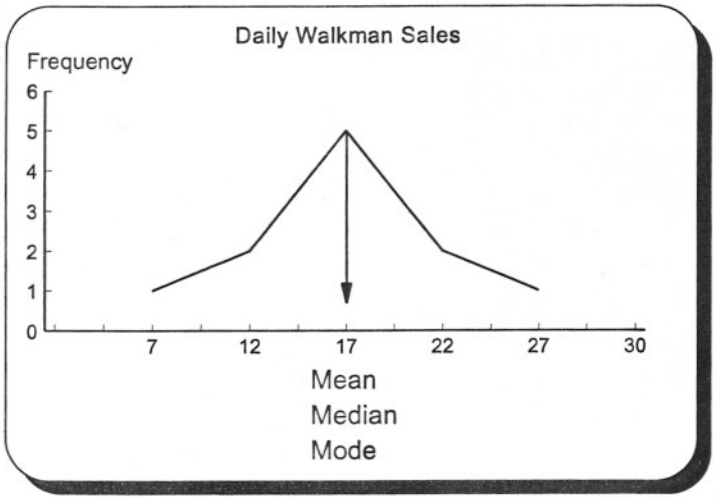
The midpoint of the class with the highest frequency is 17.

II. Do your answers to question I differ from those calculated on pages 12 and 13? Is the difference large? Could the difference be large?

Measure	Ungrouped (page 12)	Grouped
Mean	17	17
Median	16	17
Mode	16 and 17	17

Difference will be minimal if the midpoint of a class adequately represents the data of that class. Here, the differences are minimal, even though the sample is small.

III. Draw a frequency polygon of page 24 data and locate the mean, median, and mode.



IV. Using the mean of 17 and median of 17 calculated on page 24, and a sample standard deviation of 5.5 to be calculated on page 30, calculate Pearson's coefficient of skewness.

$$\frac{3(\bar{x} - MD.)}{s}$$

$$= \frac{3(17 - 17)}{5.5}$$

$$= 0$$