Exercise 2

1. State the arithmetic mean, median and mode for each of the following sets.

   (a) 5, 8, 8, 12, 15, 23, 35

   (b) 4, 4, 9, 13, 13, 27

   (c) 15, 21, 32, 45, 52, 63, 79, 85

   (d) 8, 21, 35, 42, 56, 56, 64, 78, 89, 95

   (e) 2, 10, 15

   (f) 1, 2, 7, 8, 9, 9

   (g) 4, 5, 5, 6

   (h) 1, 1, 1, 1, 1, 1, 1, 1, 1, 91

2. Why would an importer of footwear be more likely to consider the mode of shoe sizes rather than the mean or median size, when placing an order?

3. During April, the eight salespeople at Adam's Used Car Lot sold 5, 10, 7, 9, 11, 41, 5, and 8 cars respectively.

   (a) Find the arithmetic mean, median, and mode for the car sales.

   (b) When Adam looked at the monthly figures, he said, "It was a bad month! Most of my salespeople sold just 5 cars." What value was Adam using? Do you think it was a fair assessment of the monthly sales? Why or why not?

   (c) Adam looked at the figures again and said, "Seven of my salespeople did not work hard enough this month: their sales were below the middle value of the monthly sales." Comment on Adam's assessment of the data.

   (d) Which measure of central tendency best represents the car sales for April?

4. A consumer group is testing the life expectancy, in hours, of 3 brands of light bulbs. Their findings are listed below.

Light bulb A: 450, 320, 210, 190, 500, 380, 500

Light bulb B: 580, 710, 370, 540, 410, 450, 440

Light bulb C: 90, 505, 190, 520, 120, 500, 515

(a) Calculate the mean, median, and mode for each type to the nearest whole number.

(b) After the test, each manufacturer made the claim that: "Our light bulbs last an average of 500 hours." What measure was each manufacturer using?

(c) From which manufacturer would you purchase light bulbs? Why?

5. State whether the following statements are true or false.

(a) The most frequent item in a set of data is called the median.

(b) The arithmetic mean is a calculated average, whereas the median is a positional average.

6. (a) What kind of measure of central tendency would a production manager of a factory manufacturing cans be most interested in to find the most popular size can?

(b) An analyst interested in analyzing salary figures of a factory will be interested in what measure of central tendency?

7. Given the following data, determine the arithmetic mean, median, and mode.

11 6 −1 0 10 −2 1 15 −4

8. (a) Find the median of this set of numbers:

10, 10, 12, 13, 15, 18, 101

(b) Why is the median a good choice for the measure of central tendency?

9. The chief accountant made note of the time it took to audit 20 account balances. The audit times in minutes are as follows:

22	48	33	37
47	34	28	15
49	10	43	34
39	25	29	19
24	34	15	43

(a) Calculate the arithmetic mean, median, and mode for the audit times.

(b) What percentage of audit times are 20 minutes or more, but less than 40 minutes?

10. The top fifteen U.S. industrial exporters had the following export sales in 1988:

Company	**($ Millions)**
General Motors	9392
Ford	8822
Boeing	7849
General Electric	5744
IBM	4951
Chrysler	4344
Dupont	4196
McDonnell Douglas	3471
Caterpillar	2930
United Technologies	2848
Kodak	2301
Digital Equipment	2083
Hewlett-Packard	2064
Unisys	2013
Philip Morris	1863

What is the arithmetic mean dollar export sale for these companies? What is the median? Which measure is a better representative of the data, the arithmetic mean or the median? Why?

11. The all-time top video rentals as of June 1990 were the following:

Movie	Rentals (millions)
Top Gun	105.5
Crocodile Dundee	66.2
Dirty Dancing	52.6
Three Men and a Baby	52.8
Platoon	50.2
The Color Purple	49.5
Robocop	47.8
Die Hard	47.8
Fatal Attraction	45.7
Lethal Weapon	45.7

If you were asked to summarize the data using a measure of central tendency, would you use the arithmetic mean, median, or mode? Compute each and comment on the outcome.

12. The following numbers represent the price increase of 7

stocks last year: 5.1 % 4.7 % 6.3 %

11.1 % 3.9 % 2.7 % 8.5 %

What is the average rate of increase of the 7 stocks to 2 d.p ?

13. The arithmetic mean of 25 students' grades was found to be 65. Later, it was discovered that a score of 85 was incorrectly recorded as 58. Find the corrected arithmetic mean to 2 d.p.

14. Three different groups of workers receive 5.2 %, 7.4 % and 3.1 % wage increases this year. What wage increase percentage would a fourth group of workers need this year in order for all four groups of workers to average 5 % increase this year?