

Data Description - Summary Statistics

Exercise 1

- 9 A random sample of size 500 was selected from the persons listed in a residential telephone directory of a county in Wales. The number of letters in each surname was counted and the distribution of the name-lengths is given in the table below.

Name-length	3	4	5	6	7	8	9	10	11
Frequency	4	31	103	124	111	63	38	19	7

- (a) (i) Represent this distribution graphically.
(ii) Find the median and the interquartile range of the distribution.
- (b) The 500 persons in the sample are unlikely to be representative of the population of the county.
Name one group of people which is likely to be under-represented.
- (c) State, with a reason, whether the sample of surnames is likely to be representative of the surnames of the population of this county in Wales. [NEAB]

Exercise 2

- (a) A random sample of seven runner beans have lengths (in cm, to the nearest cm) given as 28, 31, 24, 33, 28, 32, 30. Find the value of S (the standard deviation).
- (b) In an experiment, a cupful of cold water is poured into a kettle and the time taken for the water to boil is noted. The experiment was conducted six times giving the following results (in seconds): 125, 134, 118, 143, 128, 131. Find the value of s^2 (the variance).
- (c) A random sample of 15 observations has sample mean 11.2 and sample variance 13.4. One observation of 21.2 is judged to be unreliable. Find the sample mean and the sample variance of the remaining 14 observations.