

Lesson 9

A-level Statistics : Year 1 Partitioning Data

9.1 Partitioning Data : Homework (Topic Summary)

Question 1

A-Level Examination Question from June 2014, S1, Q2

The mark x , scored by each student who sat a statistics examination is coded using

$$y = 1.4x - 20$$

The coded marks have mean 60.8 and standard deviation 6.60

Find the mean and the standard deviation of x

[4 marks]

Question 2

A-Level Examination Question from June 2016, S1, Q3 (a)

Before going on holiday to Seapron, Tania records the weekly rainfall (x mm) at Seapron for 8 weeks during the summer. Her results are summarised as

$$\sum x = 86.8 \quad \sum x^2 = 985.88$$

Find the standard deviation, σ_x , for these data.

[3 marks]

Question 3

A-Level Examination Question from June 2018, Applied, Q4

Charlie is studying the time it takes members of his company to travel to the office. He stands by the door to the office from 08:40 to 08:50 one morning and asks workers, as they arrive, how long their journey was.

- (a) State the sampling method Charlie used

[1 mark]

- (b) State and briefly describe an alternative method of non-random sampling Charlie could have used to obtain a sample of 40 workers

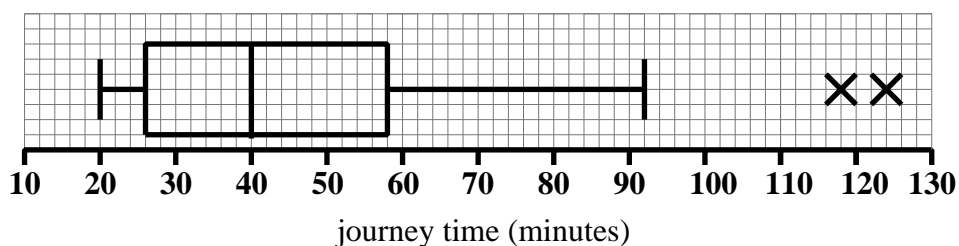
[2 marks]

Taruni decided to ask every member of the company the time, x minutes, it takes them to travel to the office.

- (c) State the data selection process Taruni used

[1 mark]

Taruni's results are summarised by the box plot and summary statistics below.



$$n = 95 \quad \sum x = 4133 \quad \sum x^2 = 202\,294$$

- (d) Write down the interquartile range for these data

[1 mark]

(e) Calculate the mean and the standard deviation for these data

[3 marks]

(f) State, giving a reason, whether you would recommend using the mean and standard deviation or the median and interquartile range to describe these data

[2 marks]

Rana and David both work for the company and have both moved house since Taruni collected her data

Rana's journey to work has changed from 75 minutes to 35 minutes and David's journey to work has changed from 60 minutes to 33 minutes

Taruni drew her box plot again and only had to change two values

(g) Explain which two values Taruni must have changed and whether each of these values has increased or decreased.

[3 marks]

Question 4

AS-Level Examination Question from June 2018, Applied, Q4 (a) & (b)

Helen is studying the daily mean wind speed for Camborne using the large data set from 1987. The data for one month is summarised in Table 1 below.

Wind speed	n/a	6	7	8	9	11	12	13	14	16
Frequency	13	2	3	2	2	3	1	2	1	2

(a) Calculate the mean for these data.

[1 mark]

(b) Calculate the standard deviation for these data and state the units.

[2 marks]