

8.1 Partitioning Data : Topic Summary

Question 1

A Biologist has divided up an area of a field into $25 \times 1 \text{ m}^2$ squares. In each square he records the occurrence of a certain species of spider. His results are shown below where each $\times$ indicates a spider found.

	$\times$	$\times$ $\times$ $\times$	$\times$	$\times$ $\times$	$\times$	
$\times$		$\times$ $\times$		$\times$	$\times$ $\times$	
$\times$ $\times$	$\times$	$\times$ $\times$ $\times$	$\times$ $\times$ $\times$	$\times$ $\times$ $\times$ $\times$	$\times$ $\times$	
$\times$ $\times$	$\times$	$\times$ $\times$	$\times$ $\times$	$\times$ $\times$	$\times$ $\times$	
$\times$ $\times$	$\times$	$\times$ $\times$	$\times$	$\times$	$\times$	

- (i) Complete the table below to show how many times each Spider Count occurred;

Spider Count	0	1	2	3	4	5	6
Squares							

[4 marks]

- (ii) Determine the mean number of spiders per m^2

[2 marks]

- (iii) Find the standard deviation of spiders per m^2

[4 marks]

- (iv) Any item of data that is more than two standard deviations away from the mean is considered to be an outlier.
On this basis, would you classify any item of the data as an outlier ?

[2 marks]

Question 2

The heights of 2000 adult males were measured and are tabulated below;

Height (cm)	160-164	165-169	170-174	175-179	180-184	185-189	190-194	195-199
Frequency	11	49	190	488	632	470	137	23

Calculate an estimate of the median of this data.
(Remember to use linear interpolation)

[6 marks]

Question 3

Some data is coded using

$$y = \frac{x - 14.5}{10}$$

For the coded data, the mean is 0.69 and the standard deviation 1.24
Determine the mean and the standard deviation for the original data.

[3 marks]

Question 4

The number of errors, x , on each of 50 mathematical Lesson tests was monitored.
The results when summarised showed that:

$$\sum x = 230 \quad \sum x^2 = 1258$$

Calculate the mean and the standard deviation of the number of errors per mathematical Lesson test.

[4 marks]

Question 5

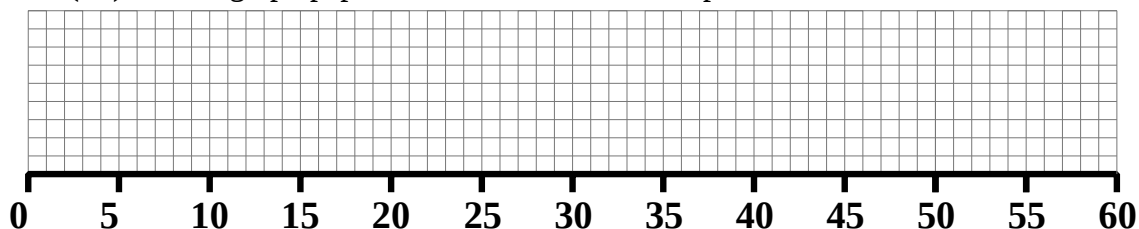
The data below shows the number of letters received by a business each day for 5 weeks. (Sundays excluded)

02	06	07	07	08	08	13	14	15	15
15	17	17	19	21	22	23	25	28	28
32	33	35	36	36	36	41	41	42	43

- (i) Calculate;
- (a) Q_1 the lower quartile
- (b) Q_2 the median
- (c) Q_3 the upper quartile
- (d) IQR the inter quartile range

[7 marks]

- (ii) On graph paper draw a box and whisker plot for the data.



[4 marks]

- (iii) Comment on the skewness of the distribution.

[2 marks]

Question 6

Explain with examples the difference between Quantitative and Qualitative data.

[2 marks]

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