

Representation of Data 2

Q1.

In a survey, the percentage of meat in a certain type of take-away meal was found. The results, to the nearest integer, for 193 take-away meals are summarised in the table.

Percentage of meat	1 – 5	6 – 10	11 – 20	21 – 30	31 – 50
Frequency	59	67	38	18	11

- (i) Calculate estimates of the mean and standard deviation of the percentage of meat in these take-away meals. [4]
- (ii) Draw, on graph paper, a histogram to illustrate the information in the table. [5]
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Q2.

A summary of 30 values of x gave the following information:

$$\Sigma(x - c) = 234, \quad \Sigma(x - c)^2 = 1957.5,$$

where c is a constant.

- (i) Find the standard deviation of these values of x . [2]
- (ii) Given that the mean of these values is 86, find the value of c . [2]
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Q3.

The weights, x kilograms, of 144 people were recorded. The results are summarised in the cumulative frequency table below.

Weight (x kilograms)	$x < 40$	$x < 50$	$x < 60$	$x < 65$	$x < 70$	$x < 90$
Cumulative frequency	0	12	34	64	92	144

- (i) On graph paper, draw a cumulative frequency graph to represent these results. [2]
- (ii) 64 people weigh more than c kg. Use your graph to find the value of c . [2]
- (iii) Calculate estimates of the mean and standard deviation of the weights. [6]
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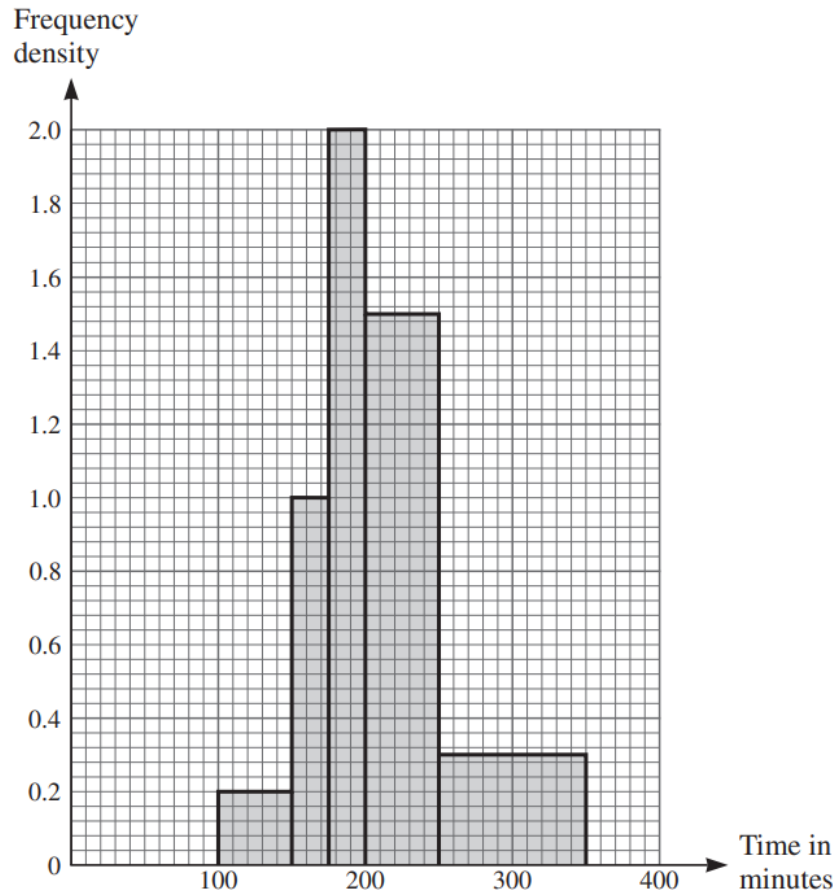
Q4.

Swati measured the lengths, x cm, of 18 stick insects and found that $\Sigma x^2 = 967$. Given that the mean length is $\frac{58}{9}$ cm, find the values of $\Sigma(x - 5)$ and $\Sigma(x - 5)^2$. [5]

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Q5.

The following histogram summarises the times, in minutes, taken by 190 people to complete a race.



- (i) Show that 75 people took between 200 and 250 minutes to complete the race. [1]
- (ii) Calculate estimates of the mean and standard deviation of the times of the 190 people. [6]
- (iii) Explain why your answers to part (ii) are estimates. [1]
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Q6.

Find the mean and variance of the following data. [3]

5 -2 12 7 -3 2 -6 4 0 8

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Q7.

The table shows the mean and standard deviation of the weights of some turkeys and geese.

	Number of birds	Mean (kg)	Standard deviation (kg)
Turkeys	9	7.1	1.45
Geese	18	5.2	0.96

(i) Find the mean weight of the 27 birds. [2]

(ii) The weights of individual turkeys are denoted by x_t kg and the weights of individual geese by x_g kg. By first finding Σx_t^2 and Σx_g^2 , find the standard deviation of the weights of all 27 birds. [5]

Q8.

Robert has a part-time job delivering newspapers. On a number of days he noted the time, correct to the nearest minute, that it took him to do his job. Robert used his results to draw up the following table; two of the values in the table are denoted by a and b .

Time (t minutes)	60 – 62	63 – 64	65 – 67	68 – 71
Frequency (number of days)	3	9	6	b
Frequency density	1	a	2	1.5

(i) Find the values of a and b . [3]

(ii) On graph paper, draw a histogram to represent Robert's times. [3]
