Topic 9 Statistics 1 (Post-TT) [37]

1.

The table shows information about the numbers of shoes sold in a shop.

Year	Quarter	Number of Shoes
2010	1	255
	2	309
	3	285
	4	243
2011	1	294
	2	330

(*a*) Calculate the 4-point moving averages for this information.

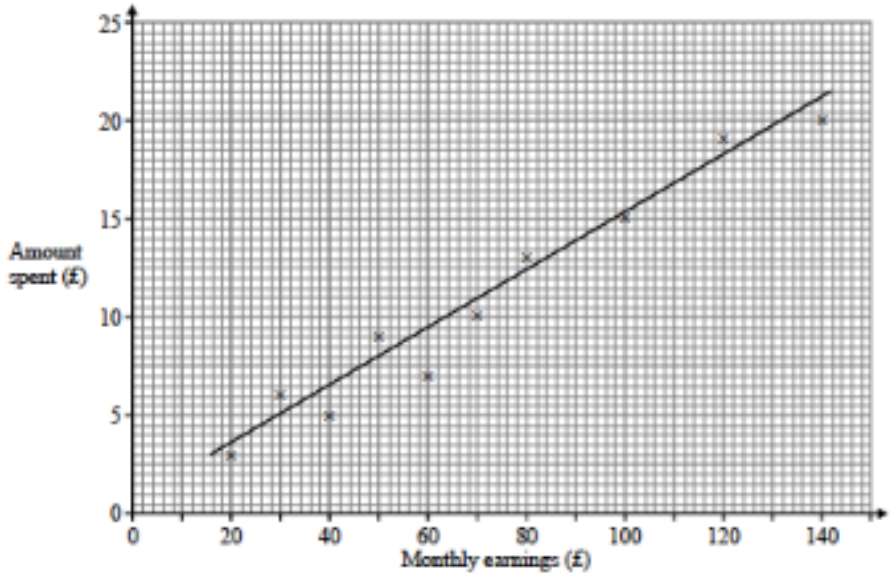
(2)

(*b*) Describe what the moving averages show about the trend in the numbers of shoes sold in the shop over this period of time.

(1)

2.

The scatter diagram shows the monthly earnings and the amount spent on mobile phone calls by each of ten students last month.



(a) Use the line of best fit to estimate the amount spent on mobile phone calls by a student who earned £112 last month.

(1)

(b) Explain why it would not be sensible to use the line of best fit to estimate the amount spent on mobile phone calls by a student who earned £400 last month.

(1)

3.

Phil counts the number of people in 50 cars that enter a car park.

His results are shown in the table.

Number of people	Frequency
1	25
2	17
3	6
4	2
more than 4	0

Calculate the mean number of people per car.

(Total 3 marks)

4.

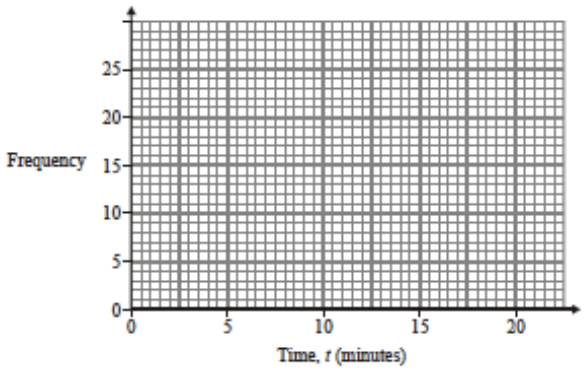
50 people were asked how long they had to wait for a bus.
The table shows the results.

Time, t (minutes)	Frequency	Mid-point	
$0 < t \leq 5$	16		
$5 < t \leq 10$	21		
$10 < t \leq 15$	10		
$15 < t \leq 20$	3		

(a) Calculate an estimate of the average time they had to wait.

(3)

(b) Draw a frequency diagram to represent the data.

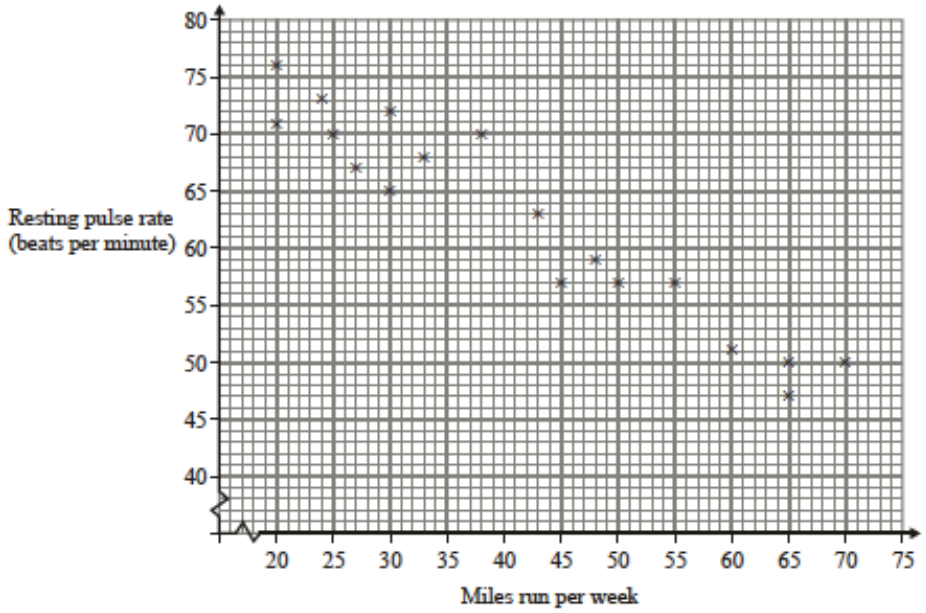


(2)

(Total 5 marks)

5.

Some runners recorded their resting pulse rates and miles run per week.



(a) How many runners have a resting pulse rate of 57 beats per minute?

(1)

(b) Draw a line of best fit.

(1)

(c) Predict the resting pulse rate of a runner who runs 40 miles per week.

(1)

(d) Describe the relationship between the resting pulse rate and miles run per week.

(1)

(Total 4 marks)

6.

(a) 120 men took part in a fitness test.
The times taken to complete the test are shown in the table.

Time, t (minutes)	Frequency
$10 < t \leq 12$	21
$12 < t \leq 14$	49
$14 < t \leq 16$	37
$16 < t \leq 18$	13
Total	120

Calculate an estimate of the mean time taken by these 120 men to complete the test.

(4)

(b) 90 women also took part in this fitness test.
An estimate of the mean time taken by these 90 women was calculated.
It was found to be 15.8 minutes.

Calculate an estimate of the mean time taken by all the 210 people to complete this test.

(3)

(Total 7 marks)

7.

The two-way table shows the number of doors and the number of windows in each classroom in a school.

		Number of windows			
		1	2	3	4
Number of doors	1	3	3	3	2
	2	1	5	7	3
	3	0	0	1	2

(a) How many classrooms have 4 windows?

(1)

(b) How many classrooms have the same number of windows as doors?

(2)

(Total 3 marks)

8.

Six pupils revise for a test.
The table shows the time each pupil spent revising and their mark in the test.

Time (hours)	2	3	5	7	8	10
Mark	30	26	34	38	45	48

(a) Plot the data as a scatter graph. **(2)**

(b) Draw a line of best fit on the scatter graph. **(1)**

(c) Use your line of best fit to estimate the mark of a pupil who revised for 4 hours. **(1)**

(d) State the type of correlation shown by the graph. **(1)**

(e) Explain why it would not be sensible to use your line of best fit to estimate the mark of a pupil who revised for 15 hours. **(1)**

(Total 6 marks)

9.

The time taken, in minutes, for a group of students to complete their homework is summarised in the grouped frequency table.

Time, t (minutes)	**Frequency**
$5 \leq t < 15$	3
$15 \leq t < 25$	f
$25 \leq t < 35$	7
$35 \leq t < 45$	6
$45 \leq t < 55$	4

The grouped data was used to calculate an estimate of the mean.
This was found to be 30 minutes.

Calculate the value of the missing frequency, f.
You **must** show your working.

(Total 4 marks)