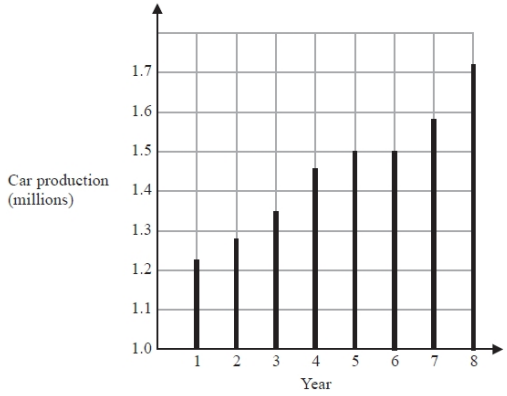
S074 Line graphs and scatter graphs

Q1.

The graph shows some information about car production in the UK over eight years.



(a) For how many of these years was car production more than 1.4 million?

.....

(1)

(b) In which two years was car production the same?

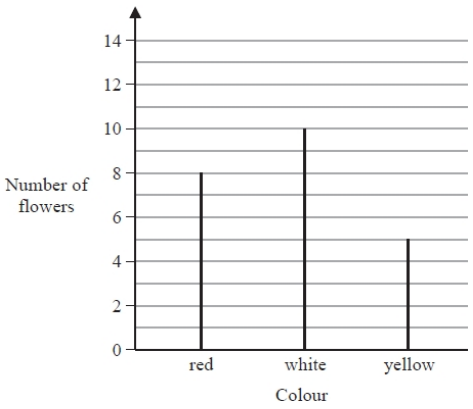
..... , ...

(1)

(Total for question = 2 marks)

Q2.

In Adam's garden, the flowers are only red or white or yellow or blue. The chart shows the number of red flowers, the number of white flowers and the number of yellow flowers.



The total number of flowers is 30

(a) Work out the number of blue flowers.

.....

(2)

(b) Write down the mode.

.....

(1)

(Total for question = 3 marks)

Q3.

On Monday morning, Shruti has £135.70 in her bank account.

On Monday, Shruti

puts £85 into her bank account
spends £45.56 from her bank account

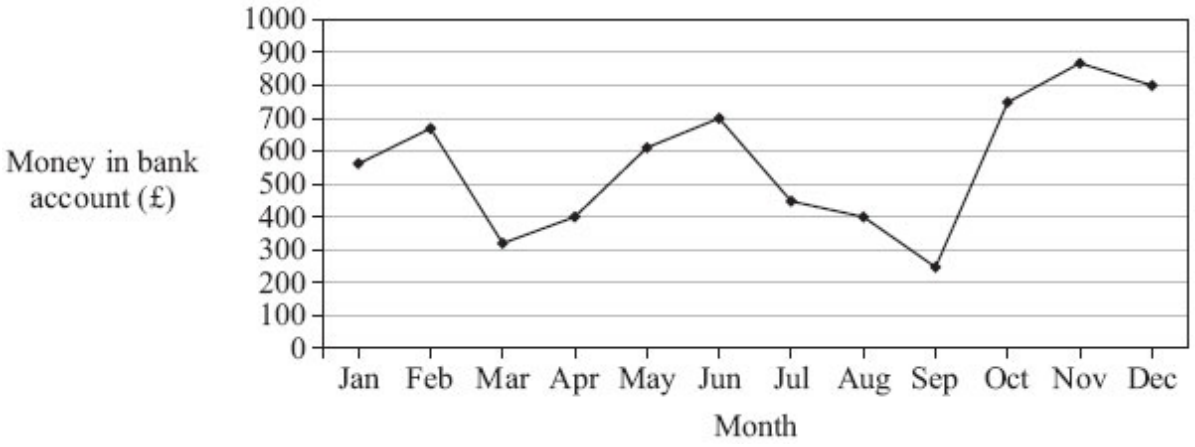
(a) How much money is in Shruti's bank account at the end of Monday?

.....

(3)

Shruti wants to find out how much money was in her bank account at the beginning of each month for the last twelve months.

This graph shows this information.



(b) How much money was in Shruti's bank account at the beginning of June?

.....

(1)

(c) At the beginning of which month was there the most money in Shruti's bank account?

.....

(1)

(d) At the beginning of which **two** months was there the same amount of money in Shruti's bank account?

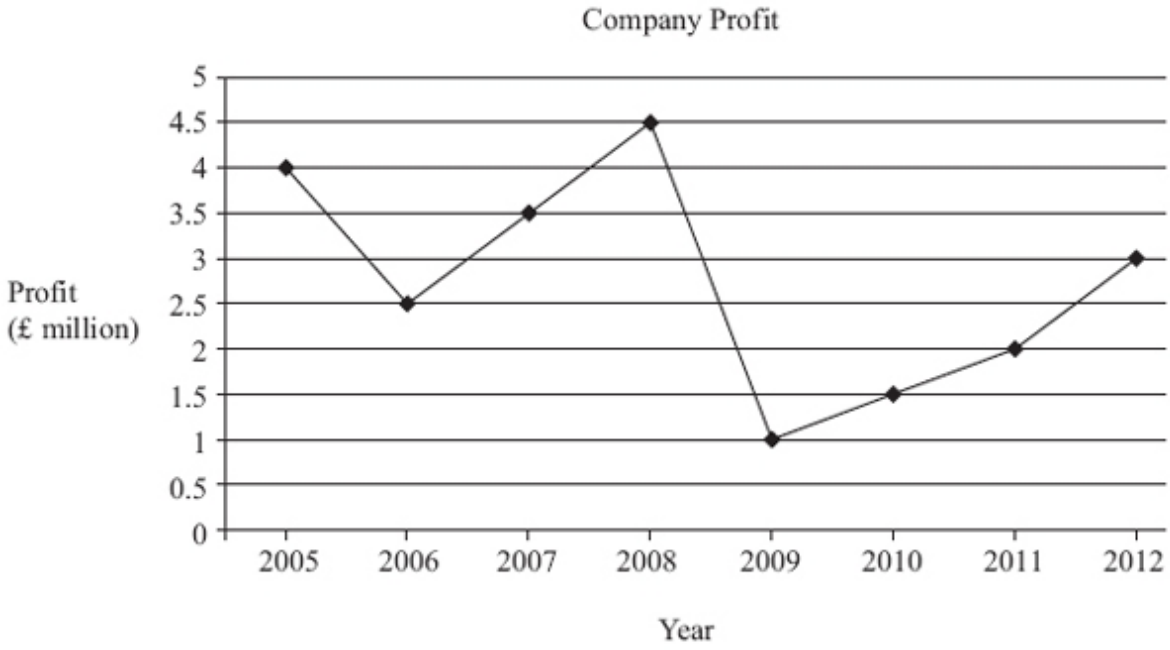
.....

(1)

(Total for Question is 6 marks)

Q4.

The graph shows information about the profit a company made each year from 2005 to 2012



(a) What was the profit in 2006?

.....

(1)

(b) In which year did the company make the most profit?

.....

(1)

(c) Describe the change in profit from 2009 to 2012

.....

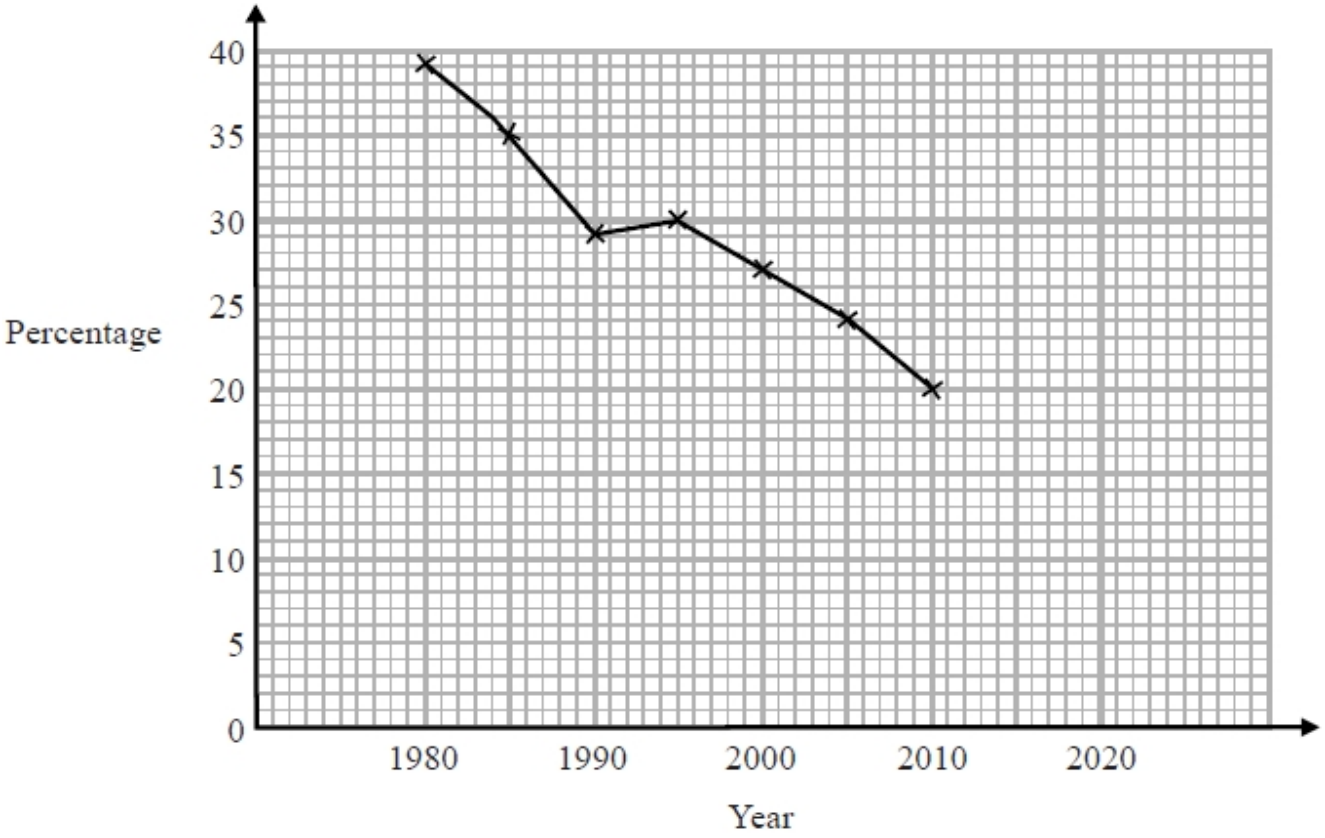
.....

(1)

(Total for Question is 3 marks)

Q5.

The time series graph shows information about the percentages of the people in a village that used the village shop for the years between 1980 and 2010



(a) Describe the trend in the percentage of the people in the village who used the shop for this period.

.....

(1)

(b) (i) Use the graph to predict the percentage of the people in the village likely to use the shop in the year 2020

..... %

(ii) Is your prediction reliable?
Explain your answer.

.....

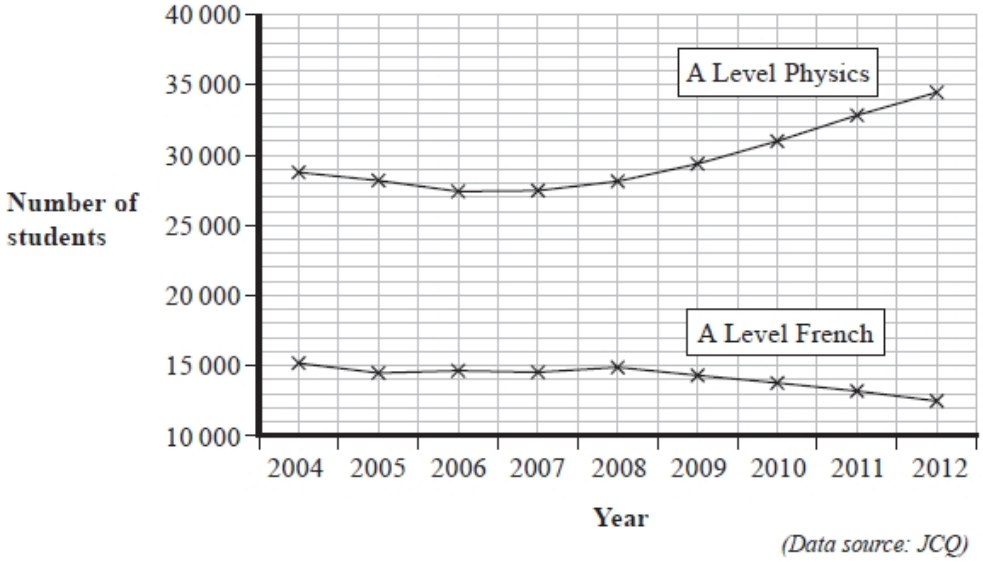
.....

(3)

(Total for question = 4 marks)

Q6.

The time series graphs show the numbers of students taking A Level Physics and A Level French in each of the years from 2004 to 2012



(Data source: JCQ)

(a) Write down an estimate for the number of students taking A Level French

(i) in 2008

.....

(ii) in 2012

.....

(2)

(b) Describe the trend in the number of students taking A Level Physics from 2007 to 2012

.....

.....

(1)

(c) Use the time series graphs to compare the numbers of students taking A Level Physics and A Level French.

.....

.....

.....

.....

.....

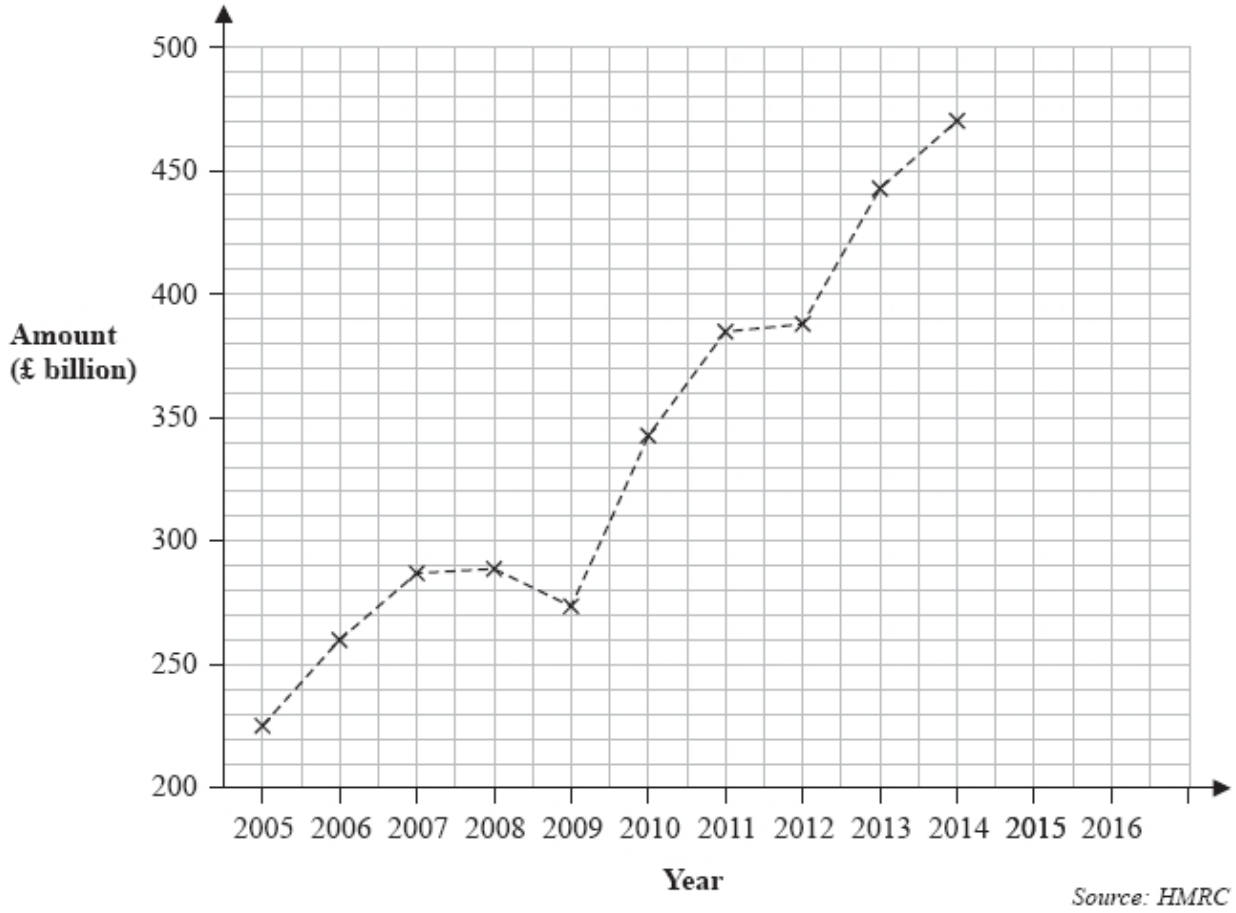
.....

(2)

(Total for Question = 5 marks)

Q7.

The time series graph shows the total amount of money (£ billion) in Individual Savings Accounts in the United Kingdom for the years 2005–2014



(a) Write down the total amount of money in Individual Savings Accounts for the year 2014

£ ..... billion

(1)

(b) (i) Draw a trend line on the time series graph.

(ii) Describe the trend.

.....

(2)

(c) Explain why using the trend line to predict the total amount of money in Individual Savings Accounts for the year 2016 may be unreliable.

.....

.....

(1)

(Total for question = 4 marks)

Q8.

The table gives some information about the numbers of overseas visitors to the United Kingdom each quarter for the years 2007 to 2009

Year	Quarter	Number of overseas visitors (100 000s)	4-point moving average (100 000s)
2007	1	8.6	
	2	13.0	11.9
	3	15.7	11.7
	4	10.3	11.5
2008	1	7.8	11.2
	2	12.2	10.9
	3	14.5	10.9
	4	9.1	10.725
2009	1	7.8	10.1
	2	11.5	
	3	12.0	
	4	6.7	

Data source: Adapted from Government Statistics website

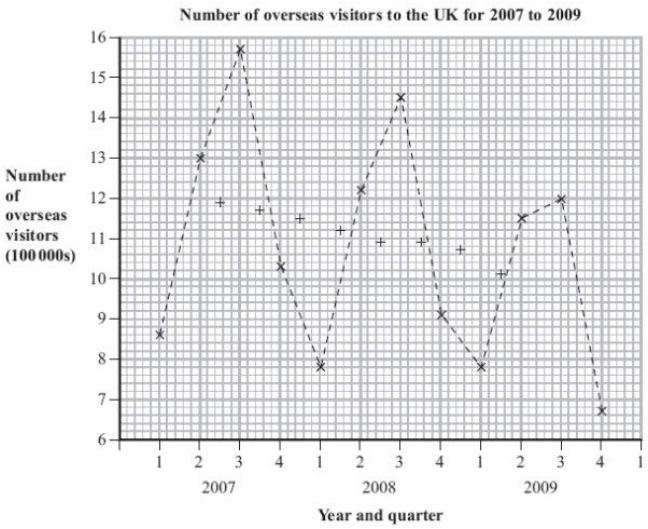
The last 4-point moving average is missing from the table.

(a) (i) Calculate this 4-point moving average.

.....

(ii) Plot this moving average on the time series graph.

(4)



(b) Write down the quarter with the greatest number of overseas visitors each year.

.....

(1)

(c) Describe and interpret the trend over the years 2007 to 2009

. . . . . .

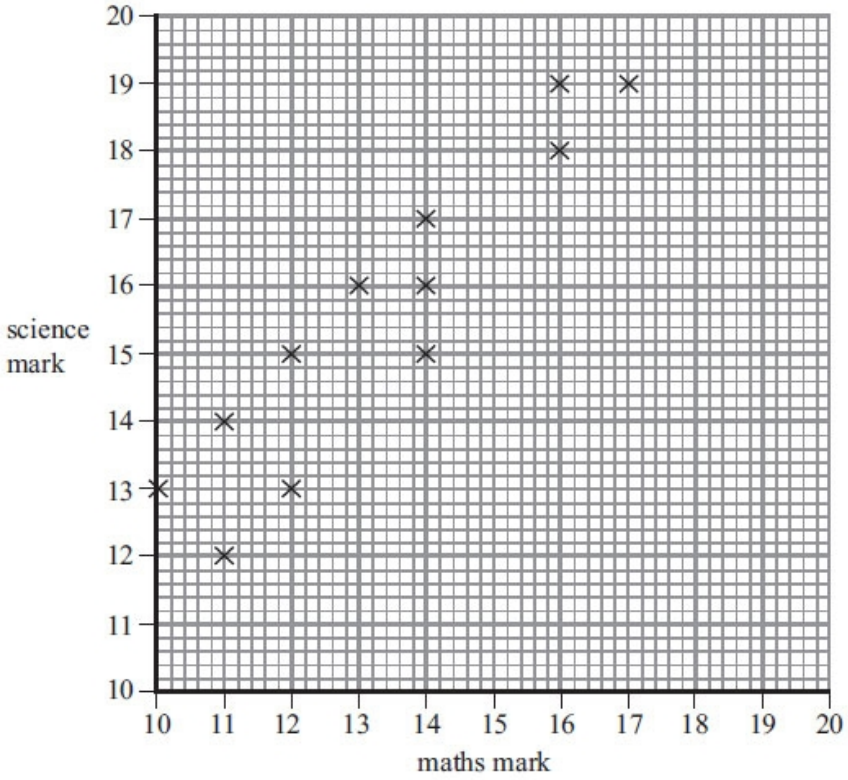
. . . . . .

(2)

(Total for Question is 7 marks)

Q9.

Mr Kent's students did a maths test and a science test.
The scatter graph shows the marks of 12 of these students.



The table shows the marks of two more students.

Name	maths	science
Masood	12	14
Nimer	17	20

(a) Show this information on the scatter graph.

(1)

(b) What type of correlation does this scatter graph show?

.....

(1)

David did the maths test.
He was absent for the science test.

David's mark in the maths test was 15

(c) Estimate a science mark for David.

.....

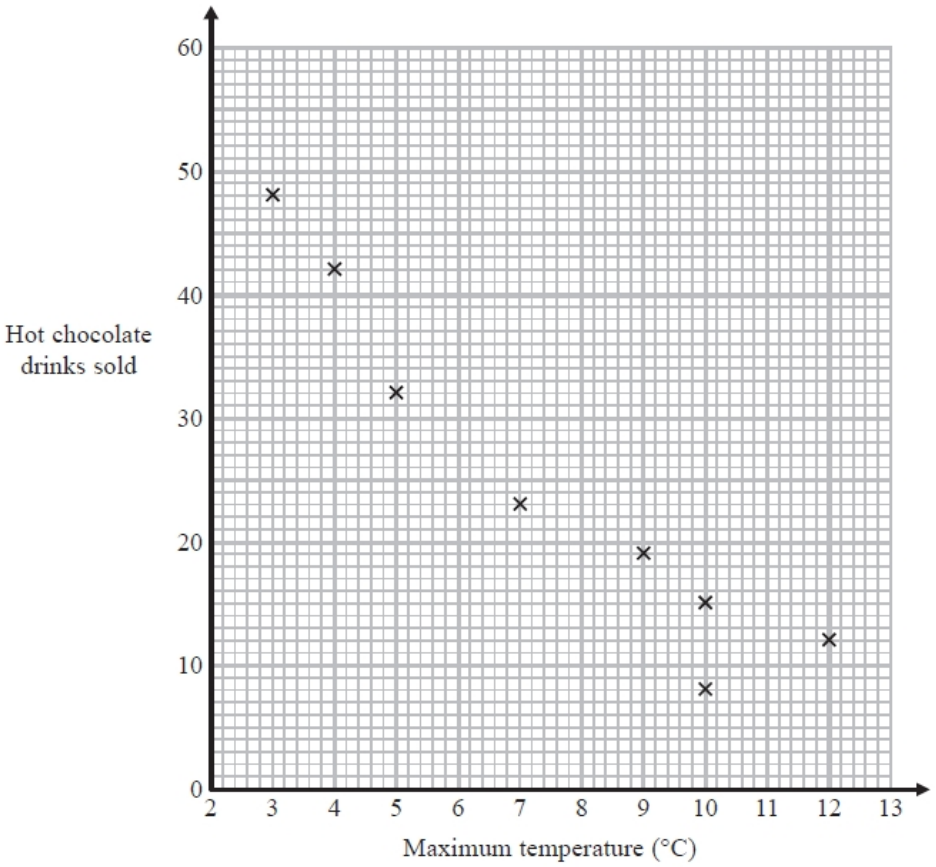
(2)

(Total for Question is 4 marks)

Q10.

Carlos has a cafe in Clacton.
Each day, he records the maximum temperature in degrees Celsius (°C) in Clacton and the number of hot chocolate drinks sold.

The scatter graph shows this information.



On another day the maximum temperature was 6 °C and 35 hot chocolate drinks were sold.

(a) Show this information on the scatter graph.

(1)

(b) Describe the relationship between the maximum temperature and the number of hot chocolate drinks sold.

.....

.....

(1)

(c) Draw a line of best fit on the scatter diagram.

(1)

One day the maximum temperature was 8 °C.

(d) Use your line of best fit to estimate how many hot chocolate drinks were sold.

.....

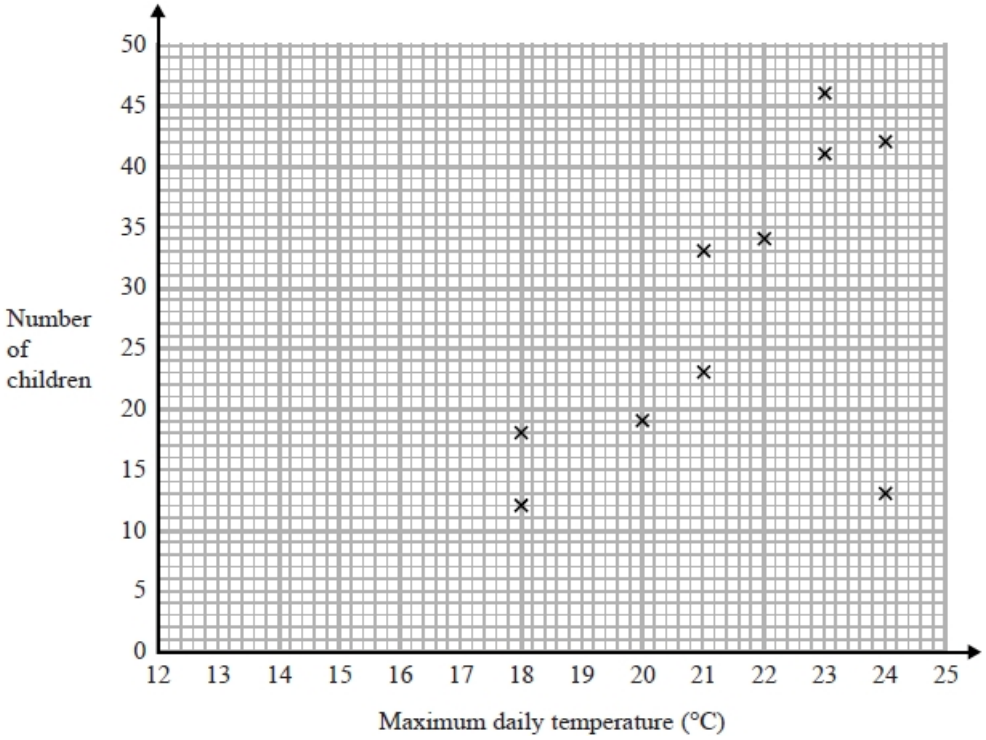
(1)

(Total for Question is 4 marks)

Q11.

Jean records the maximum daily temperature each day for 10 days.
She also records the number of children going to a paddling pool for each of these days.

She draws this scatter graph for her information.



Jean's information for one of these days is an outlier on the scatter graph.

(a) Give a possible reason for this.

.....

.....

(1)

(b) What type of correlation does the scatter graph show?

.....

(1)

On the 11th day, the maximum daily temperature was 19°C.

(c) Write down an estimate for the number of children going to paddling pool on the 11th day.

.....

(1)

It would not be sensible to use the scatter graph to predict the number of children going to the paddling pool on a day when the maximum daily temperature was 13°C.

(d) Give a reason why.

.....

.....

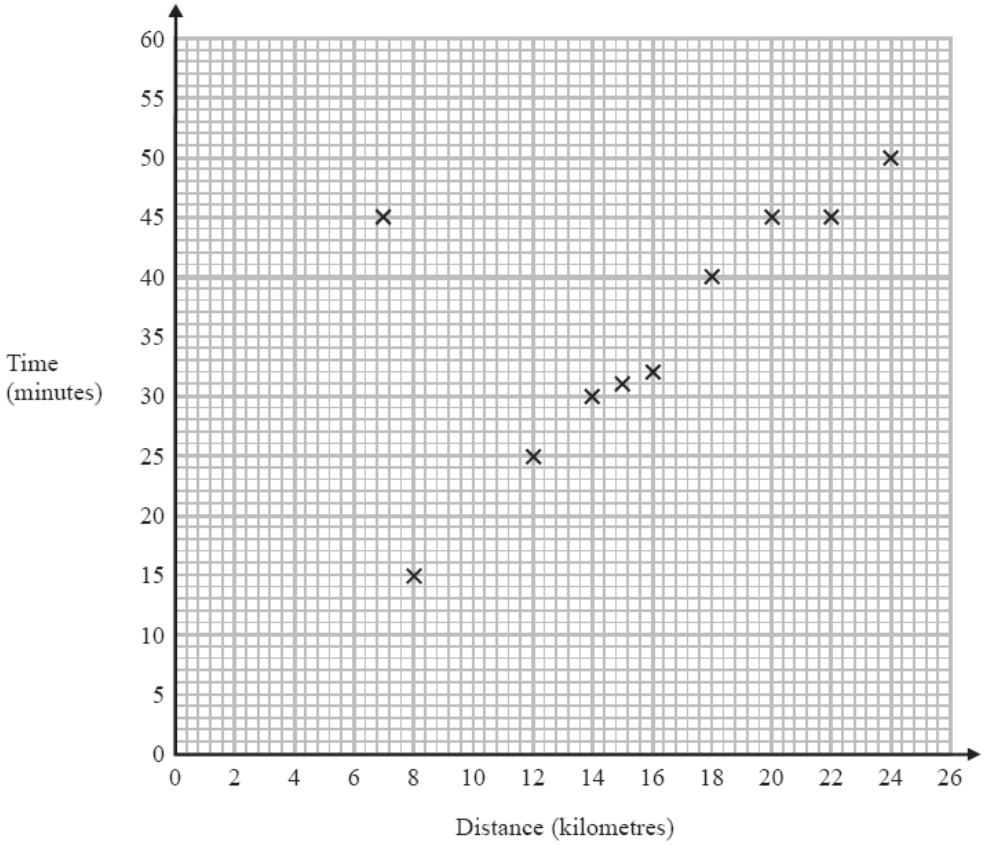
(1)

(Total for question = 4 marks)

Q12.

A delivery driver records for each delivery the distance he drives and the time taken.

The scatter graph shows this information.



For another delivery he drives 22 kilometres and takes 50 minutes.

(a) Show this information on the scatter graph.

(1)

(b) What type of correlation does the scatter graph show?

.....

(1)

The driver has to drive a distance of 10 km for his next delivery.

(c) Estimate the time taken for this delivery.

..... minutes

(2)

During one of the deliveries, the driver was delayed by road works.

(d) Using the graph write down the time taken for this delivery.

..... minutes

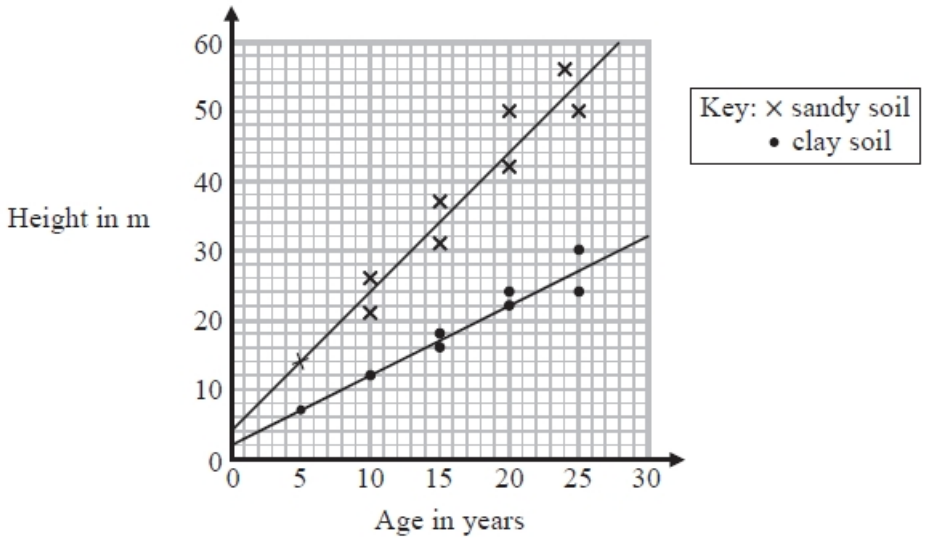
(1)

(Total for question = 5 marks)

Q13.

Bill wants to compare the heights of pine trees growing in sandy soil with the heights of pine trees growing in clay soil.

The scatter diagram gives some information about the heights and the ages of some pine trees.



(a) Describe the relationship between the height of pine trees and the age of pine trees growing in sandy soil.

.....

(1)

A pine tree growing in clay soil is 18 years old.

(b) Find an estimate for the height of this tree.

.....m

(1)

A pine tree is growing in sandy soil.

(c) Work out an estimate for how much the height of this tree increases in a year.

.....m

(2)

(d) Compare the rate of increase of the height of trees growing in clay soil with the rate of increase of the height of trees growing in sandy soil.

.....

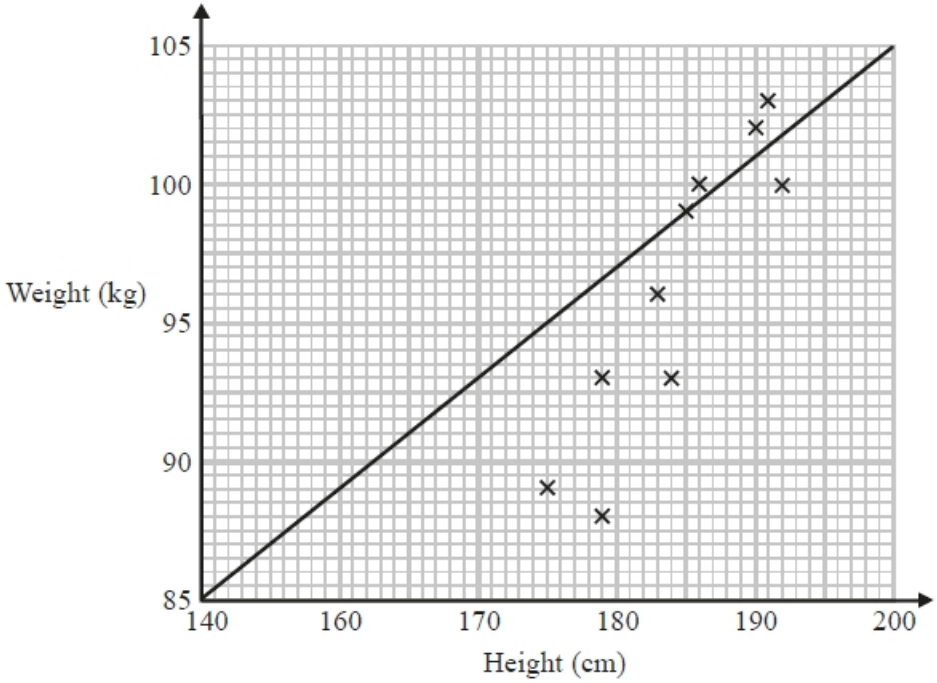
.....

(2)

(Total for question = 6 marks)

Q14.

Sean has information about the height, in cm, and the weight, in kg, of each of ten rugby players.
He is asked to draw a scatter graph and a line of best fit for this information.
Here is his answer.



Sean has plotted the points accurately.
Write down two things that are wrong with his answer.

1 .....

.....

2 .....

.....

(Total for question = 2 marks)