Q1.

Here are the shop and website prices of some books.

Shop price (£)	5	6	8	8	8	9	10	13	13	17
Website price (£)	2.90	3.50	2	4	4.50	4.50	5.40	7.20	8.00	9.80

(a)   The first six points have been plotted on this scatter diagram.

Complete the scatter diagram
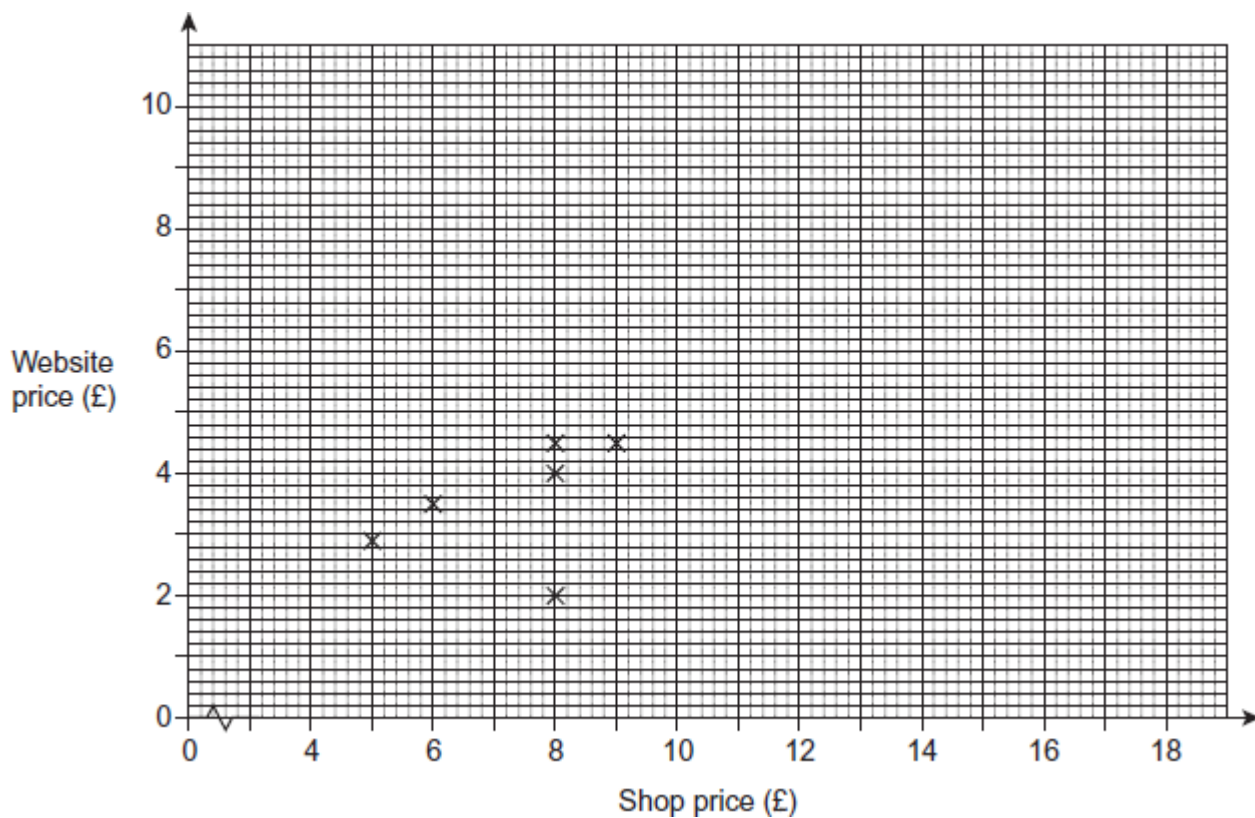
(2)

(b)   Describe the type of correlation shown on the scatter diagram.

....

(1)

(c)   A book has a shop price of £ 15.

Estimate its website price.

You **must** show your working.

£ ....

(2)

(d)   The shop manager thinks that one of the prices on the website is incorrect.

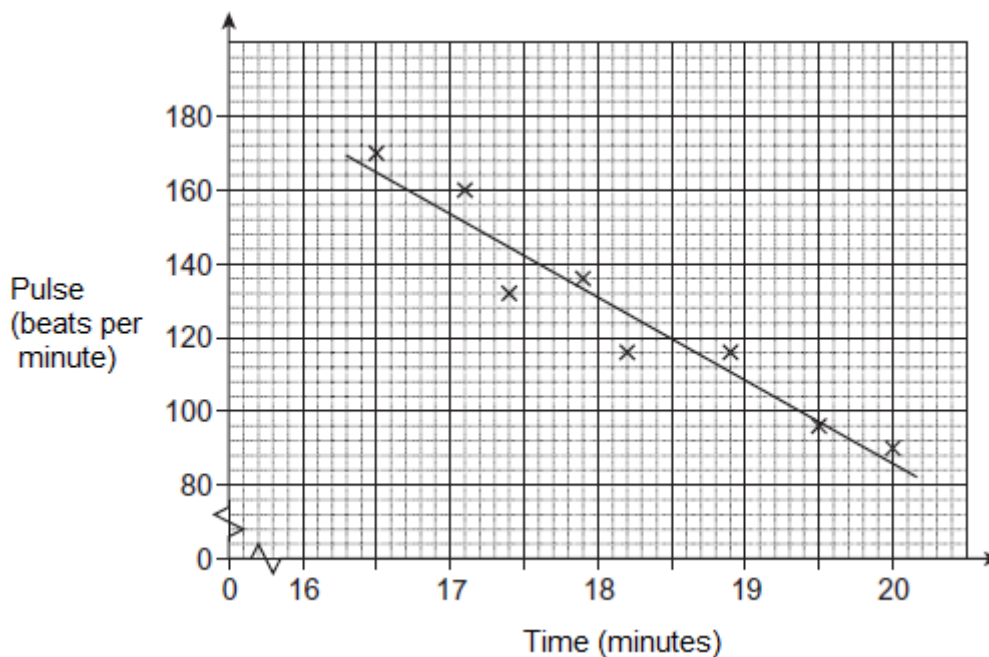Circle this point on the graph.
Give a reason for your answer.

....

....

(2)
(Total 7 marks)

Q2. Julia goes for the same run every day.
After each run she records her time and measures her pulse.

The scatter graph shows her results for 8 days.
A line of best fit has been drawn.

(a)   What type of correlation does the graph show?

Answer ....

(1)

(b)   She completes her next run in 18.5 minutes.

Use the line of best fit to estimate her pulse.

....

Answer .... beats per minute
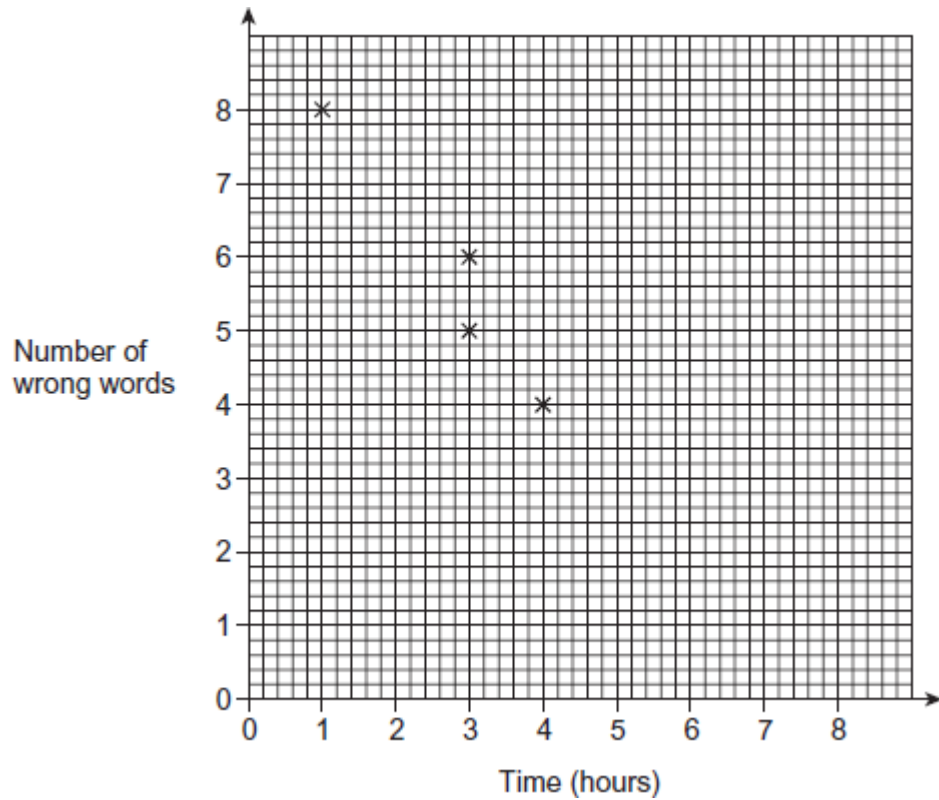
**(1)
(Total 2 marks)**

Q3.

Seven students have to learn some French words.

The table shows the time they spent learning the words and the number of words they got wrong in a test.

Time (hours)	1	3	3	4	6	7	8
Number of wrong words	8	6	5	4	3	2	2

(a)   The first four points have been plotted.

Complete the scatter diagram.

(1)

(b)   Describe the relationship shown by the scatter diagram.

....

....

....

(1)

(c)   Another student spent 5 hours learning the words.

Use a line of best fit to estimate the number of words he got wrong.

Answer ....

(2)

(d)   Ellie has to take the test.

She says,

"If I learn the words for 12 hours, I will definitely not get any wrong."
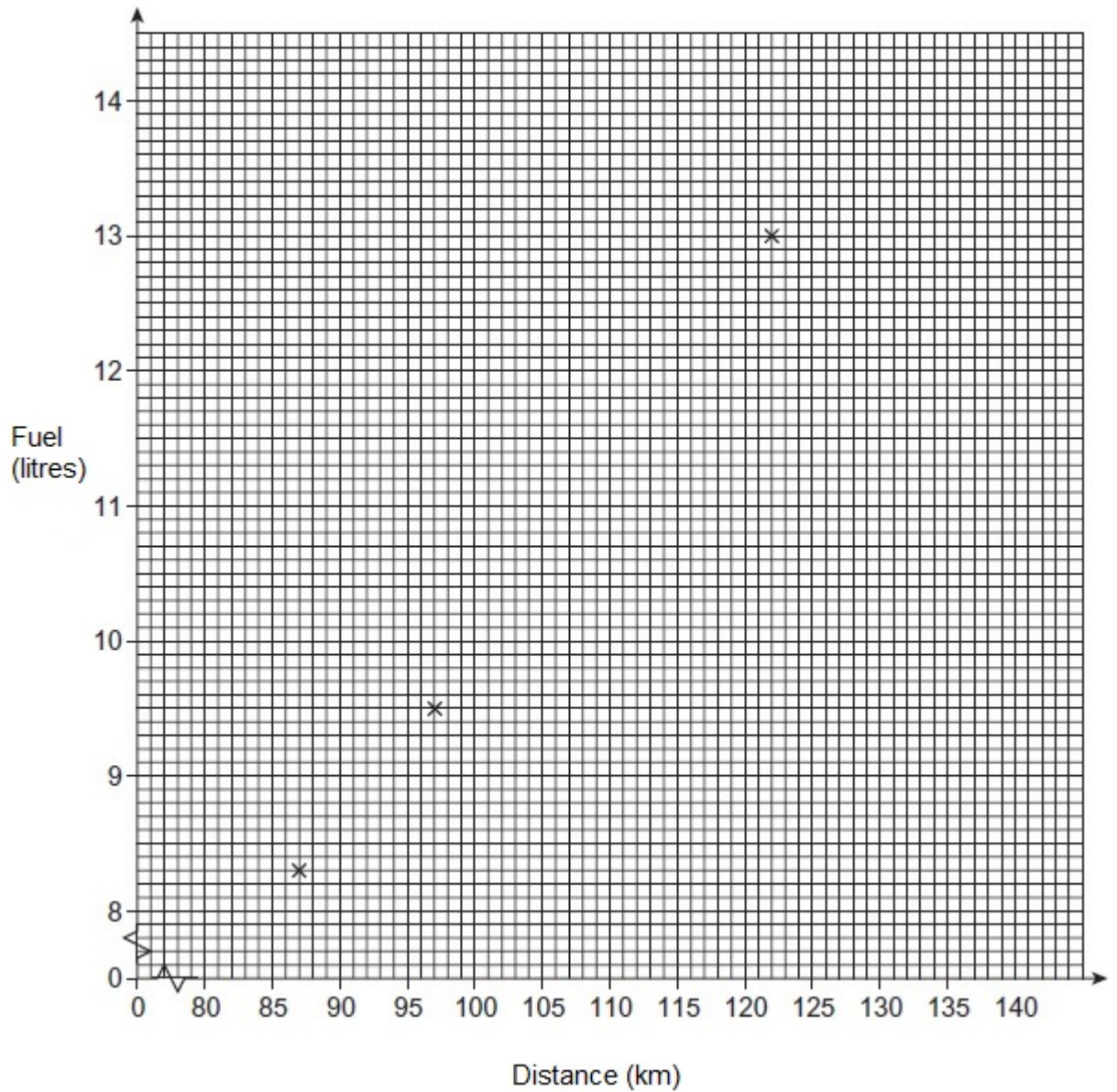
Is she correct?
Give a reason for your answer.

....

....

(1)
(Total 5 marks)

Q4. Each day a taxi driver records the distance he travels.
He also records the amount of fuel his car uses.

Distance (km)	87	122	97	90	105	100	135	116
Fuel (litres)	8.3	13.0	9.5	9.4	11.2	9.9	14.0	12.0

(a)   Complete the scatter graph.
The first three points have already been plotted.

Fuel (litres) vs Distance (km) scatter graph

(2)

(b)   Draw a line of best fit.

(1)

(c)   Use your line of best fit to predict the fuel used to travel 110 km.

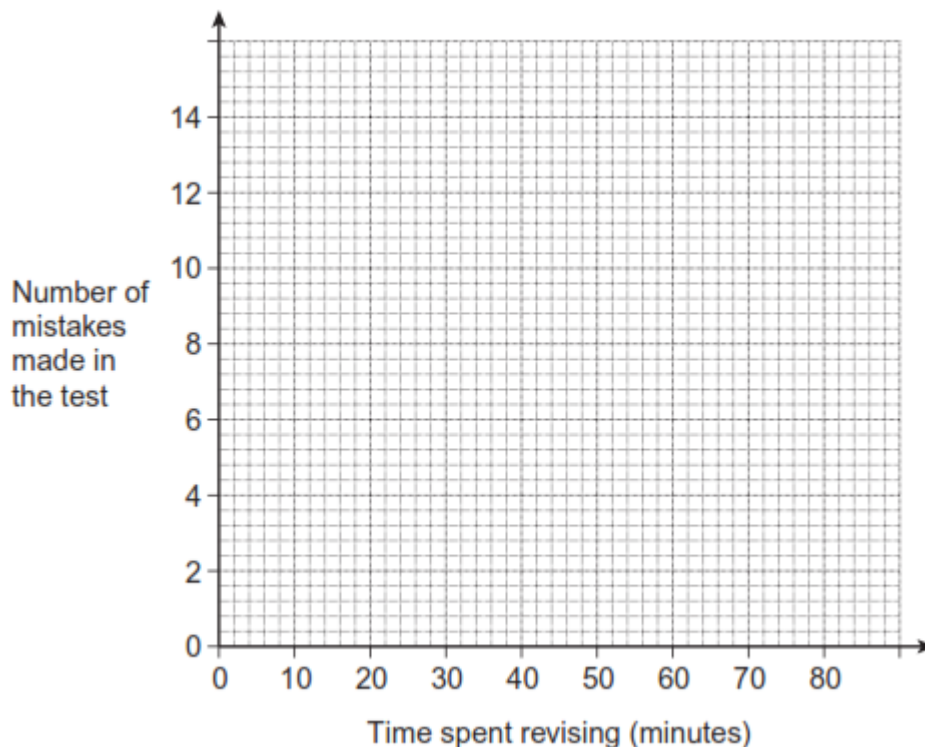..

Answer .... litres

(1)
(Total 4 marks)

Q5. Six pupils took a spelling test.

Time spent revising (minutes)	10	15	35	40	45	50
Number of mistakes made in the test	14	11	5	5	2	3

(a)   Plot the data on the scatter diagram.

(2)

(b)   A pupil revised for 25 minutes.

Use a line of best fit to estimate the number of mistakes he made.

Answer ....

(2)

(c)   Another pupil in the class revised for 75 minutes.

Did she make any mistakes?
Tick a box.

Q6. A student draws three scatter diagrams.
She draws a line of best fit on each one.

Diagram A

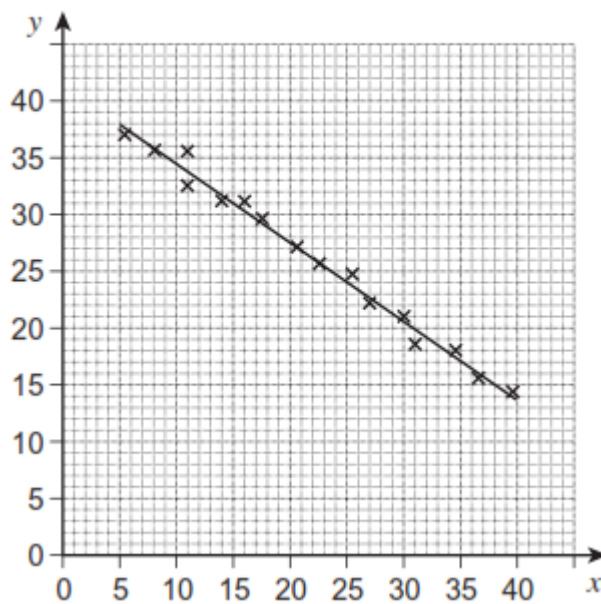Diagram B

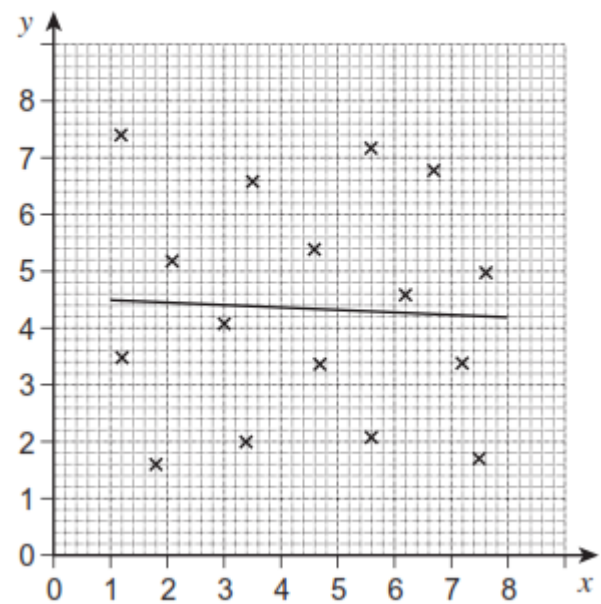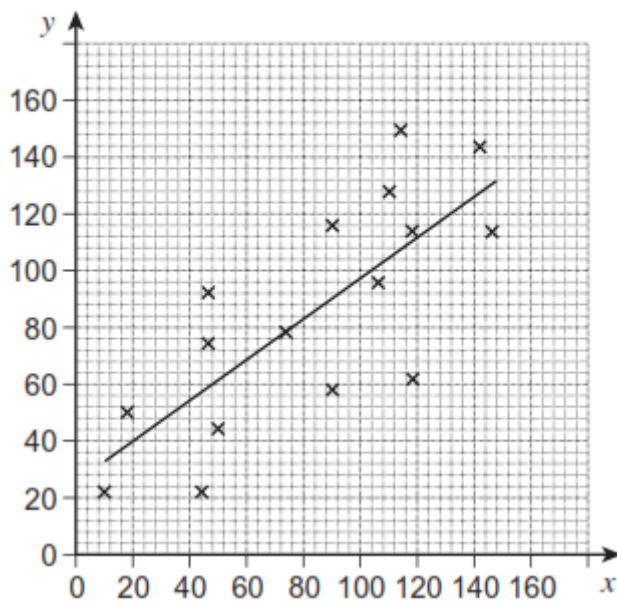Diagram C

(a)   Which diagram shows the strongest correlation?
       Circle your answer.

                 A   B   C

(1)

(b)   Which line of best fit should **not** have been drawn?

       Give a reason for your answer.

       ....

       ....

(1)
(Total 2 marks)

Q7. A company sells ice cream.
The average midday temperature and the sales for each month in 2011 are shown.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average midday temperature (°C)	8	6	11	14	17	21	22	29	20	14	10	4
Sales (tonnes)	23	24	23	30	33	37	39	47	36	28	22	23

(a)   Complete the scatter diagram by plotting the values for July to December.
       The values for January to June have been done for you.

)

Average midday temperature (°C)
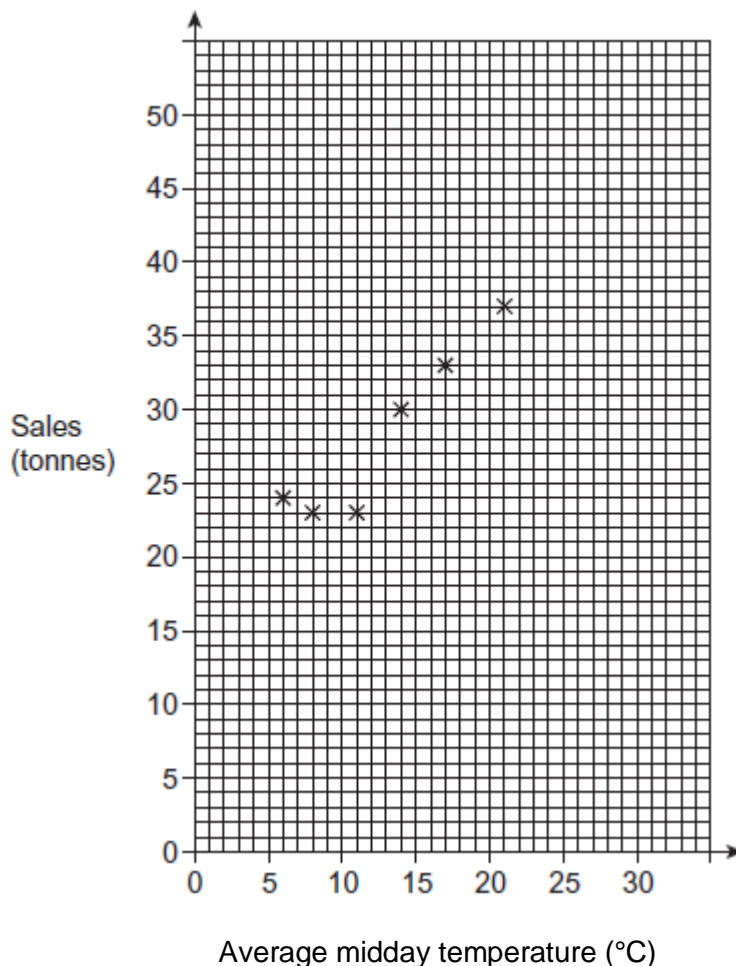
(2)

(b)   In July 2012, the average midday temperature is predicted to be 25 °C.

Use the graph to estimate the sales of ice cream in July 2012.
Show clearly how you obtain your answer.

....

....

....

Answer .... tonnes

(2)

(c)   In December 2012, the average midday temperature is predicted to be 5 °C higher than in December 2011.

Should the company increase its production of ice cream for December 2012?
Tick a box.

Yes ☐   No ☐

Give a reason for your answer.

....

....

....

(1)
(Total 5 marks)

Q8. Olivia usually drives home from work.
Some of her journey times are shown.

Week 1

	Mon	Tue	Wed	Thu	Fri
Leaves work (pm)	5.13	5.24	5.30	5.28	5.02
Arrives home (pm)	5.55	6.03	6.15	6.06	5.32
Time taken (minutes)	42	39	45	38	30

Week 2

	Mon	Tue	Wed	Thu	Fri
Leaves work (pm)	5.15	5.18	5.20	5.07	5.10
Arrives home (pm)	5.49	5.50	5.57	5.40	
Time taken (minutes)		32	37	33	121

(a)   How long did it take Olivia to drive home on Monday of week 2?

Answer ...…...............…..............…...... minutes

(1)

(b)   On Friday of week 2 Olivia walked home.

What time did she arrive home?

....

....

Answer ...…...........…..............…...... pm

(2)

(c)   Complete the scatter diagram for the **four** days she drives home in week 2.
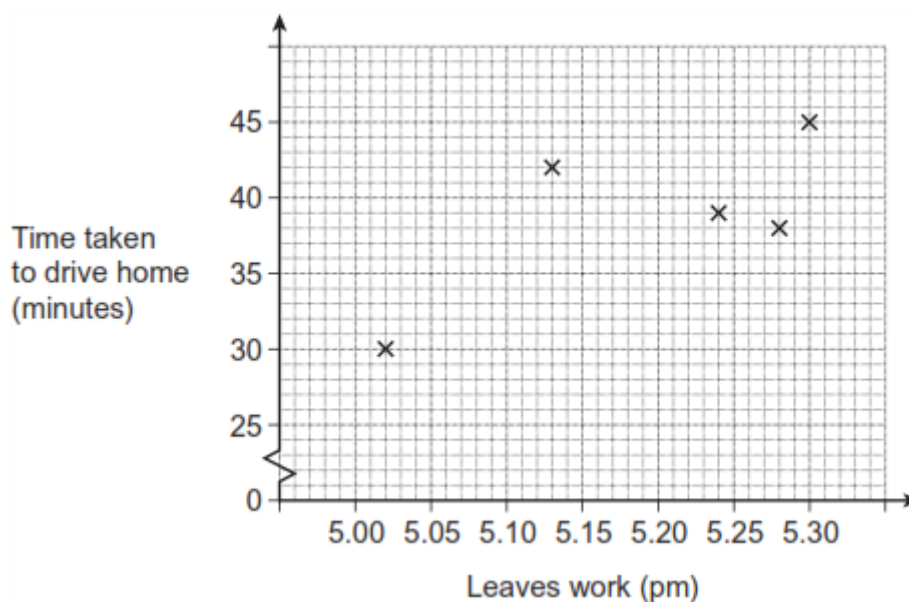
(2)

(d)   Estimate the time Olivia would have arrived home on Friday of week 2 if she had driven.
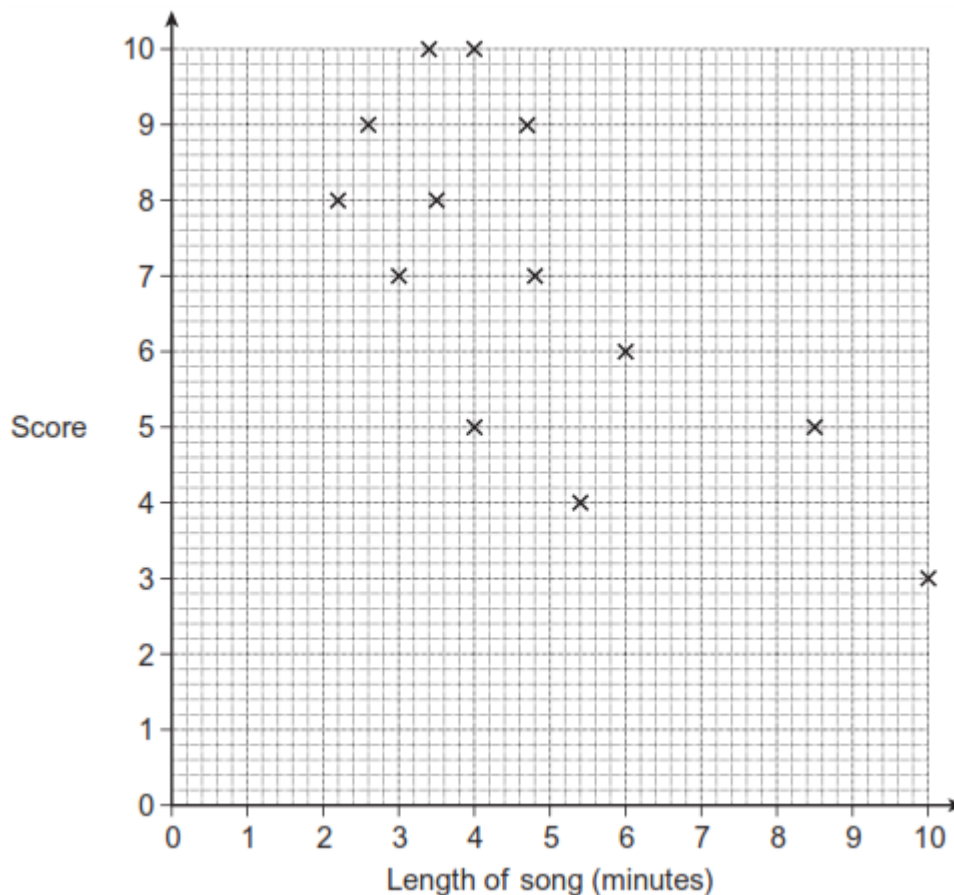Use your scatter diagram to show how you decide.

....

....

Answer ...…...........…..............…...... pm

(3)
(Total 8 marks)

Q9. Freddie and Priya both like music.
Freddie gives some songs a score out of 10.
The scatter diagram shows his results.

(a)   What fraction of the songs is given full marks?

Answer ....

(1)

(b)   How long is the song that is given a score of 4?
Give your answer in minutes and seconds.

....

Answer .... minutes ....seconds

(2)

(c)   Freddie has this hypothesis.

1

He says, "The shorter the song the more I like it".

Comment on his hypothesis.

....

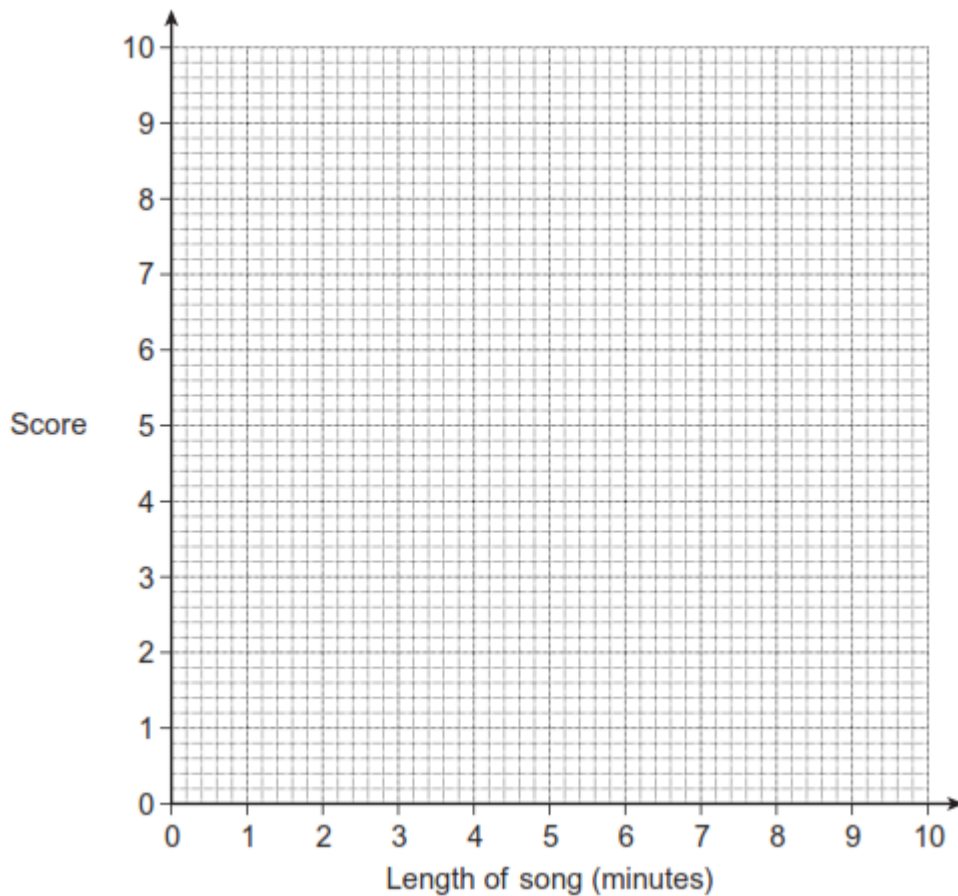..

(1)

(d)   Priya also gives some songs a score out of 10.
She has a different hypothesis.
She says, "The longer the song the more I like it".
Her hypothesis is strongly supported by the data she collects.

Plot points on the grid to show how her scatter diagram may look.

(1)
(Total 5 marks)