THIRD SPACE LEARNING

GCSE Exam Questions

Scatter Graphs | Statistics

GCSE Exam Questions: Scatter Graphs

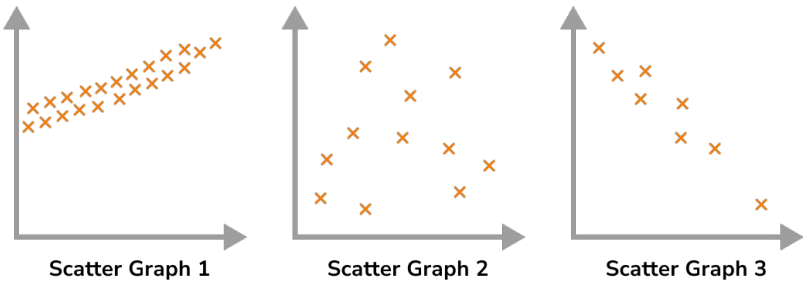
1) **(a)** Here are three scatter graphs and three statements.

Choose the statement which best describes each scatter graph.

A Positive Correlation

B Negative Correlation

C No Correlation



Statement ____ Statement ____ Statement ____

(2)

(b) Hassan wants to investigate the relationship between the temperature outside and the number of people who choose hot soup from the menu in his café.

Hassan predicts that *"the colder the temperature outside, the greater the number of soup sales"*.

Hassan collects data on temperature and soup sales and plots these on a scatter graph. What type of correlation would support Hassan's prediction?

(1)

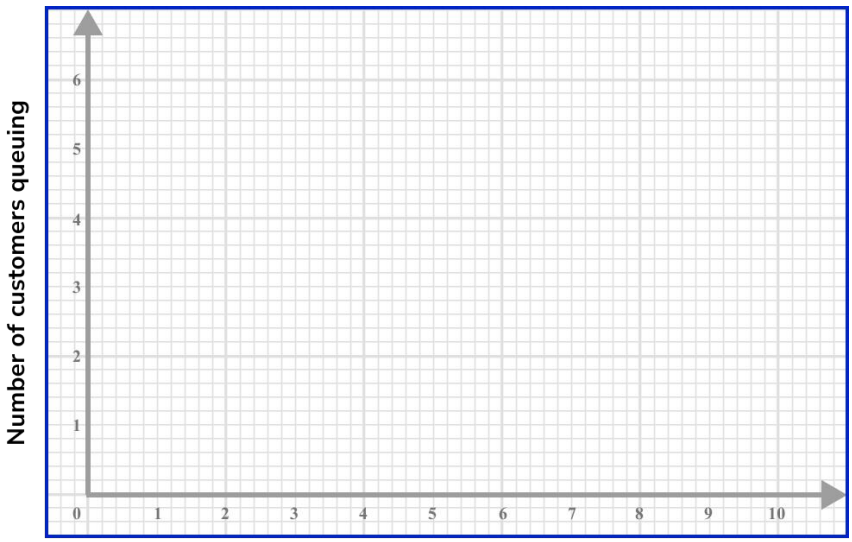
(3 marks)

GCSE Exam Questions: Scatter Graphs

2) The table shows information recorded by a supermarket at noon each day for a week.

Day	Mon	Tues	Weds	Thurs	Fri	Sat	Sun
Number of checkout tills open	5	1	2	3	2	6	4
Number of customers queuing	2	4	3	4	5	3	3

(a) Represent the data from the table on a scatter graph using the axes below.



(2)

(b) Draw an estimated line of best fit on your scatter graph.

(1)

(c) Use your line to estimate the number of customers queuing if 9 check out tills are open.

_____

(1)

(d) Explain why your answer to part (c) may be unreliable.

_____

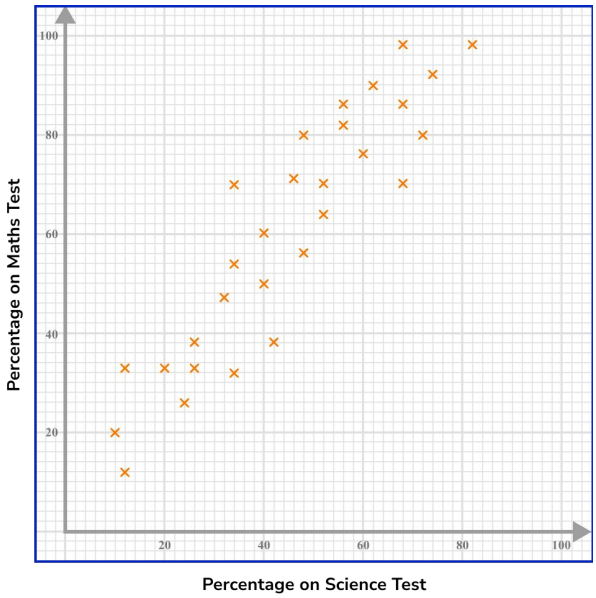
(1)

(5 marks)

GCSE Exam Questions: Scatter Graphs

3) Ms Tuttle's tutor group took tests in Maths and Science.

She decided to plot their results on a scatter graph as shown below.



(a) How many students scored higher than 60% in the Science test?

(1)

(b) Draw an estimated line of best fit on the scatter graph.

(1)

(c) One student was absent for the Maths test but scored 57% on the Science test.

Use your line of best fit to estimate this student's mark on the Maths test.

(1)

(d) Ms Tuttle says

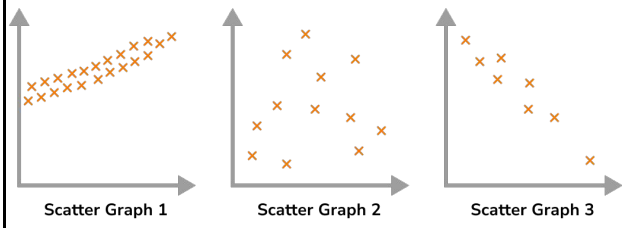
"A high score on the Science test causes a high score on the Maths test".

Do you agree with Ms Tuttle? Give reasons for your answer.

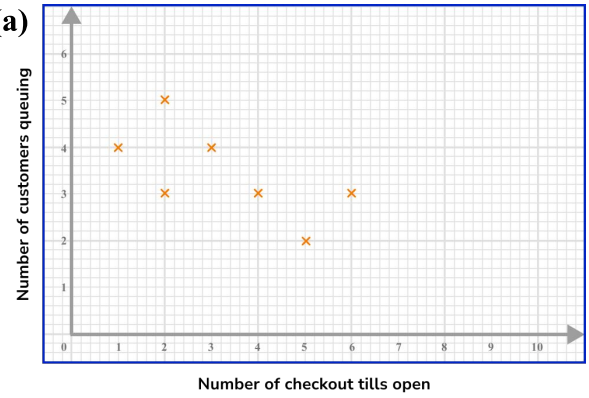
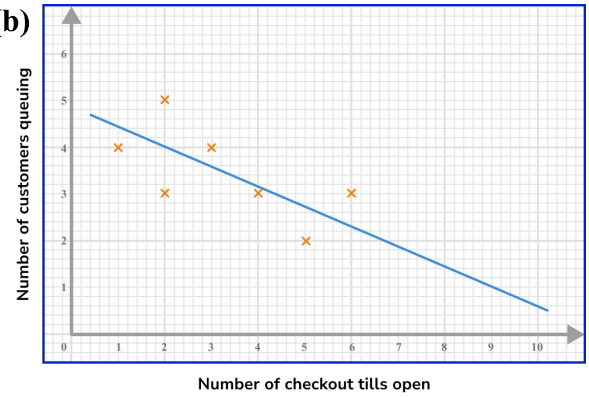
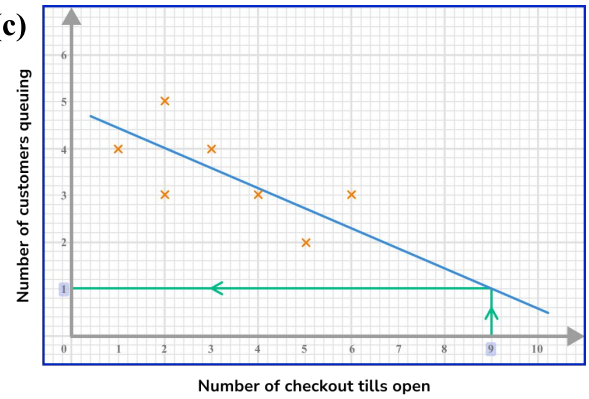
(2)

(5 marks)

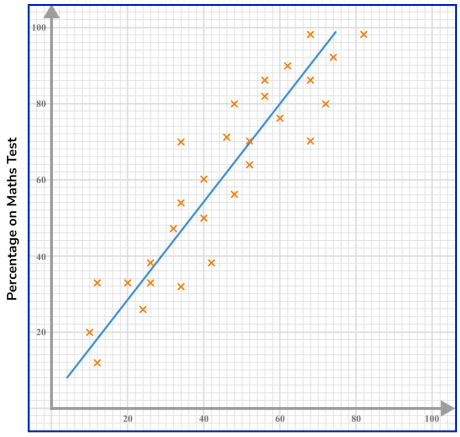
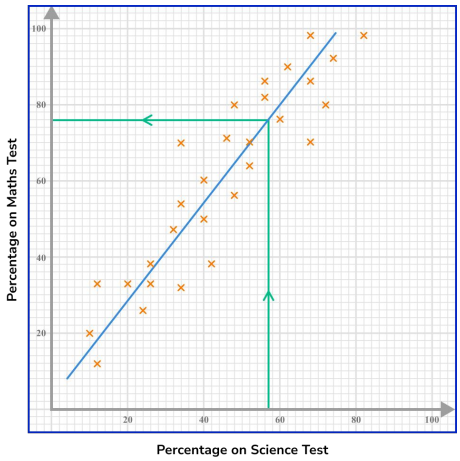
GCSE Exam Questions: Scatter Graphs Answers

	Question	Answer	Marks
1) (a)	Here are three scatter graphs and three statements. Choose the statement which best describes each scatter graph. A Positive Correlation B Negative Correlation C No Correlation  Statement ____ Statement ____ Statement ____	**(a)** Scatter Graph 1 = A Scatter Graph 2 = C Scatter Graph 3 = B Two statements correctly matched All three statements correctly matched	 **(1)** **(1)**
(b)	Hassan wants to investigate the relationship between the temperature outside and the number of people who choose hot soup from the menu in his café. Hassan predicts that *"the colder the temperature outside, the greater the number of soup sales"*. Hassan collects data on temperature and soup sales and plots these on a scatter graph. What type of correlation would support Hassan's prediction?	**(b)** Negative correlation	**(1)**

GCSE Exam Questions: Scatter Graphs Answers

	Question	Answer	Marks
2) (a)	Represent the data from the table on a scatter graph using the axes below.	**(a)**  All but one point plotted correctly All points plotted correctly	**(1)** **(1)**
(b)	Draw an estimated line of best fit on your scatter graph.	**(b)** 	**(1)**
(c)	Use your line to estimate the number of customers queuing if 9 checkout tills are open.	**(c)**  1	**(1)**
(d)	Explain why your answer to part (c) may be unreliable.	**(d)** Possible answers include: This estimate may be unreliable because the line of best fit had to be extended beyond the data set. -This estimate may be unreliable because no results were recorded for more than 6 checkout tills being open. -This estimate may be unreliable because extrapolation has been used.	**(1)**

GCSE Exam Questions: Scatter Graphs Answers

	Question	Answer	Marks
3) (a)	How many students scored higher than 60% in the Science test?	**(a)** 7 students	**(1)**
(b)	Draw an estimated line of best fit on the scatter graph.	**(b)** 	**(1)**
(c)	One student was absent for the Maths test but scored 57% on the Science test. Use your line of best fit to estimate this student's mark on the Maths test.	**(c)** 76% 	**(1)**
(d)	Ms Tuttle says "A high score on the Science test causes a high score on the Maths test". Do you agree with Ms Tuttle? Give reasons for your answer.	**(d)** No. Possible reasons include: -A scatter graph does not show causation, it shows correlation. -High scores in Science do not cause high scores in Maths, but there is a positive correlation between high scores in Science and high scores in Maths. -Ms Tuttle is wrong because she says one variable causes another. A better statement would be "the higher the score on the Science test, the higher the score on the Maths test". -There is a relationship between the scores on the Science test and the scores on the Maths tests, but they do not cause each other.	**(1)** **(1)**

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