

Scatter Graph Review, Interpolation and Extrapolation

Question 1: Jack thinks that “if you are better at Maths then you are better at Science”. He records test scores for seven people

Maths	85	23	46	79	52	42	33
Science	75	42	51	74	55	52	46

- i) Draw the scatter graph
- ii) What correlation does the graph suggest?
- iii) Do you therefore agree with Jack’s hypothesis?
- iv) Draw on a suitable line of best fit
- v) Estimate the Science score of someone who gets 50 in Maths.
- vi) Would it be appropriate to use our data to estimate the Maths score of someone who gets 95 in Science?

Question 2: The following table shows the scores of the same class in Maths and English.

Maths	95	33	45	65	11	5	82	77	66	42
English	43	67	22	91	88	12	57	66	43	63

- i) Draw the scatter graph
- ii) Describe the correlation
- iii) Produce an appropriate hypothesis relating Maths and English scores
- iv) Is it appropriate to draw a line of best fit for the data above?

Question 3: Simon is designing a new piece of electrical equipment and is testing its efficiency at different random temperatures.

Temperature	33	27	31	26	21	18	25
Efficiency	42	52	44	61	78	89	43

- i) Draw the scatter graph
- ii) Describe the correlation, explaining what this suggests about the efficiency of the equipment. What guidance would he need to send to people who purchased the equipment?
- iii) Draw on an appropriate line of best fit
- iv) What efficiency would you expect at a temperature of 21 degrees?
- v) What temperature would give an efficiency of 100%? Comment on the appropriateness of this answer.

Think-pair-share activity

- 1) You have 5 minutes to think of as many real-life examples of positive, negative and no correlation.
- 2) You will then share your answers with your partner for a couple of minutes.
- 3) The ideas will then be shared with the entire class

Positive	Negative	None

Think-pair-share activity

- 1) You have 5 minutes to think of as many real-life examples of positive, negative and no correlation.
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Positive	Negative	None

An appreciation of Linear Hire Graphs – deducing rules

Developing a simple understanding of gradient and their link with rules

Part 1

- a) For each of the following tables, plot the graph and deduce the Mathematical rule linking the variables
- b) Explain the rule carefully in words

Table 1: Hire cost of a Car

M = Months	1	2	3	4
C = Cost	1400	1800	2200	2600

Table 2: Cost of staying at a hotel

N = Nights	1	2	3	4
P = Price	125	135	145	155

Table 3: Hours spend shopping and money in bank account

H = Hours	1	2	3	4
A = amount	500	420	340	260

Table 4: Amount of bacteria on medical equipment per unit area, amount of time spent sterilising

T = time (seconds)	1	2	3
B = Bacteria amount	22000	19000	16000

Part 2: Plot graphs for the following rules

$y = 4x + 1$	$p = 3x + 4$	$h = -2x + 7$
$y = x^2$	$y = 8 - 1.5t$	$r = 2.2n + 1.8$