



H11-10min Regression and the PMCC: 10-minute Pack

EDEXCEL 1ST0 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

1 Which of these values could not be a product moment correlation coefficient (PMCC)?

- ☐ A) 0.85
- ☐ B) -0.42
- ☐ C) 1.20
- ☐ D) 0

(Total for Question 1 is 1 mark)

2 Match each statistical term to its correct definition.

Definitions:

P: A numerical measure, between -1 and 1, of the strength and direction of the linear relationship between two variables.

Q: Using a line of best fit to estimate a value within the range of the given data.

R: Using a line of best fit to estimate a value outside the range of the given data.

S: A straight line drawn through a scatter graph that best represents the linear trend in the data.

(i) Interpolation (1)

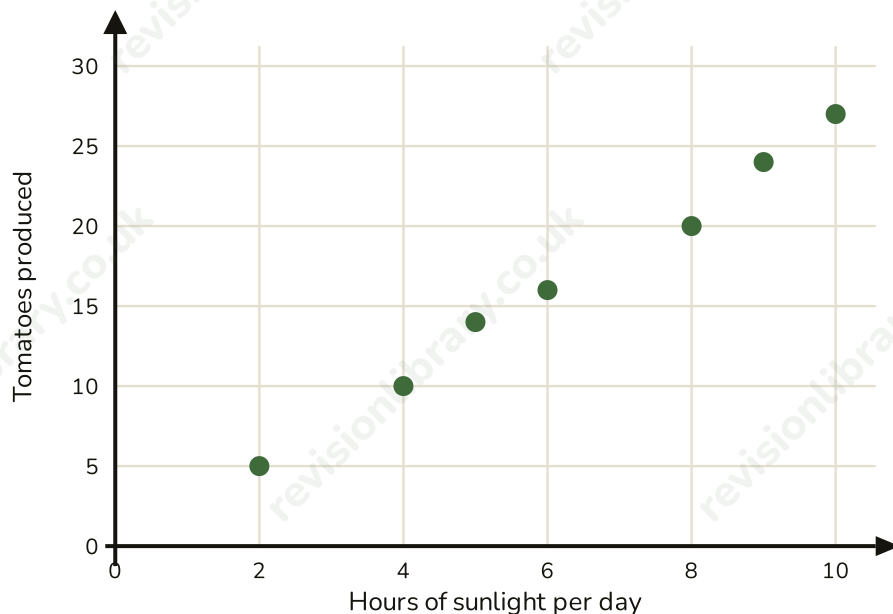
(ii) Extrapolation (1)

(iii) Line of best fit (1)

(iv) Product moment correlation coefficient (PMCC) (1)

(Total for Question 2 is 4 marks)

- 3** A gardener records, for 7 tomato plants, the number of hours of direct sunlight each plant receives per day and the number of tomatoes it produces that season. The scatter graph shows the results.



- (a) Write down the number of tomatoes produced by the plant that received 5 hours of sunlight per day. (1)
-
- (b) Write down the type of correlation shown by the scatter graph. (1)
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- (c) Describe what the scatter graph shows about the relationship between hours of sunlight and the number of tomatoes produced. (2)

(Total for Question 3 is 4 marks)

Mark scheme • H11-10min Regression and the PMCC: 10-minute Pack

Question 1

- **B1** C cao
- **Answer: C) 1.20**

Question 2

- (i) **B1** Q cao
- (i) **Answer: Q**
- (ii) **B1** R cao
- (ii) **Answer: R**
- (iii) **B1** S cao
- (iii) **Answer: S**
- (iv) **B1** P cao
- (iv) **Answer: P**

Question 3

- (a) **B1** 14 cao
- (a) **Answer: 14**
- (b) **B1** Positive cao
- (b) **Answer: Positive correlation**
- (c) **B1** identifies that as hours of sunlight increases, the number of tomatoes produced increases, oe
- (c) **B1** correct context, e.g. plants that received more sunlight tended to produce more tomatoes, oe
- (c) **Answer: As the number of hours of sunlight increases, the number of tomatoes produced also tends to increase.**