



Aberdare Community School
Mathematics Department

WJEC GCSE
Higher – Non Calculator
Data

Scatter diagrams

Name:

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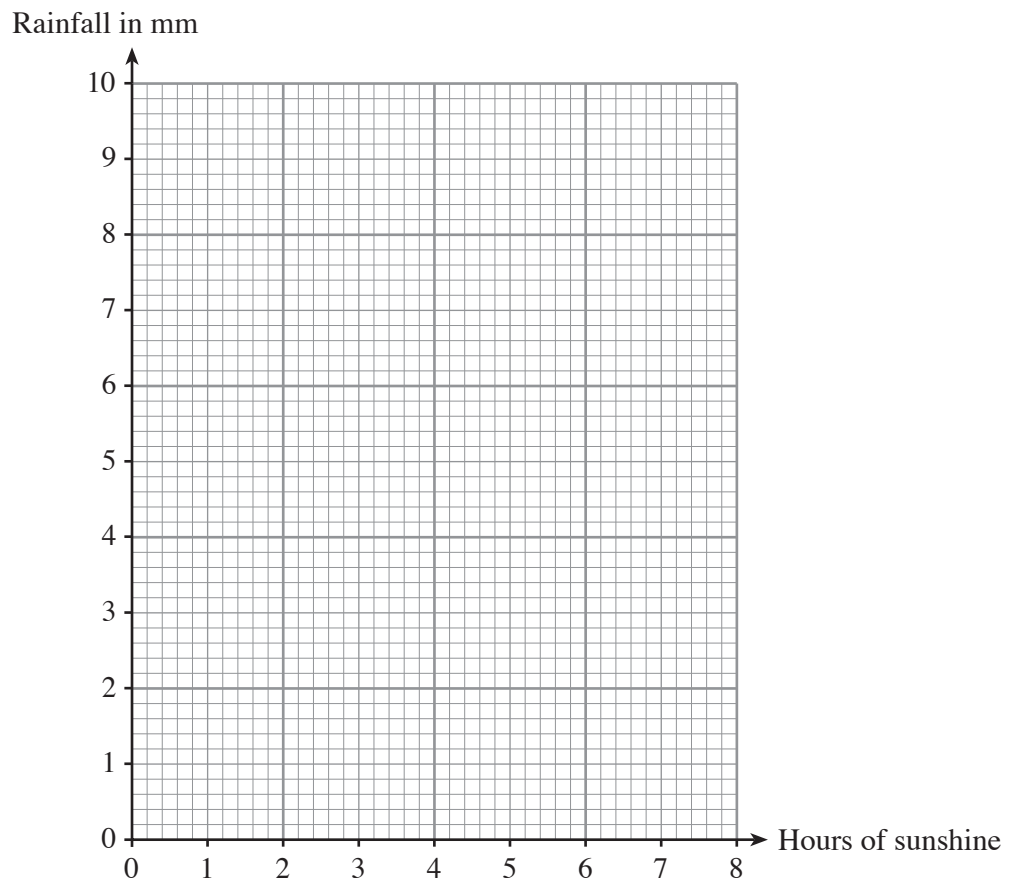
Date:

Teacher:

1. The number of millimetres of rainfall and number of hours of sunshine are recorded by a group of students every Monday for 5 weeks. The table below shows the results.

Number of hours of sunshine	5.5	6.5	6.0	7.9	3.0
Millimetres of rainfall	3.5	1.0	2.5	0.0	9.5

- (a) On the graph paper below draw a scatter diagram of these results. [2]



- (b) Describe the correlation between the number of hours of sunshine and the amount of rainfall.

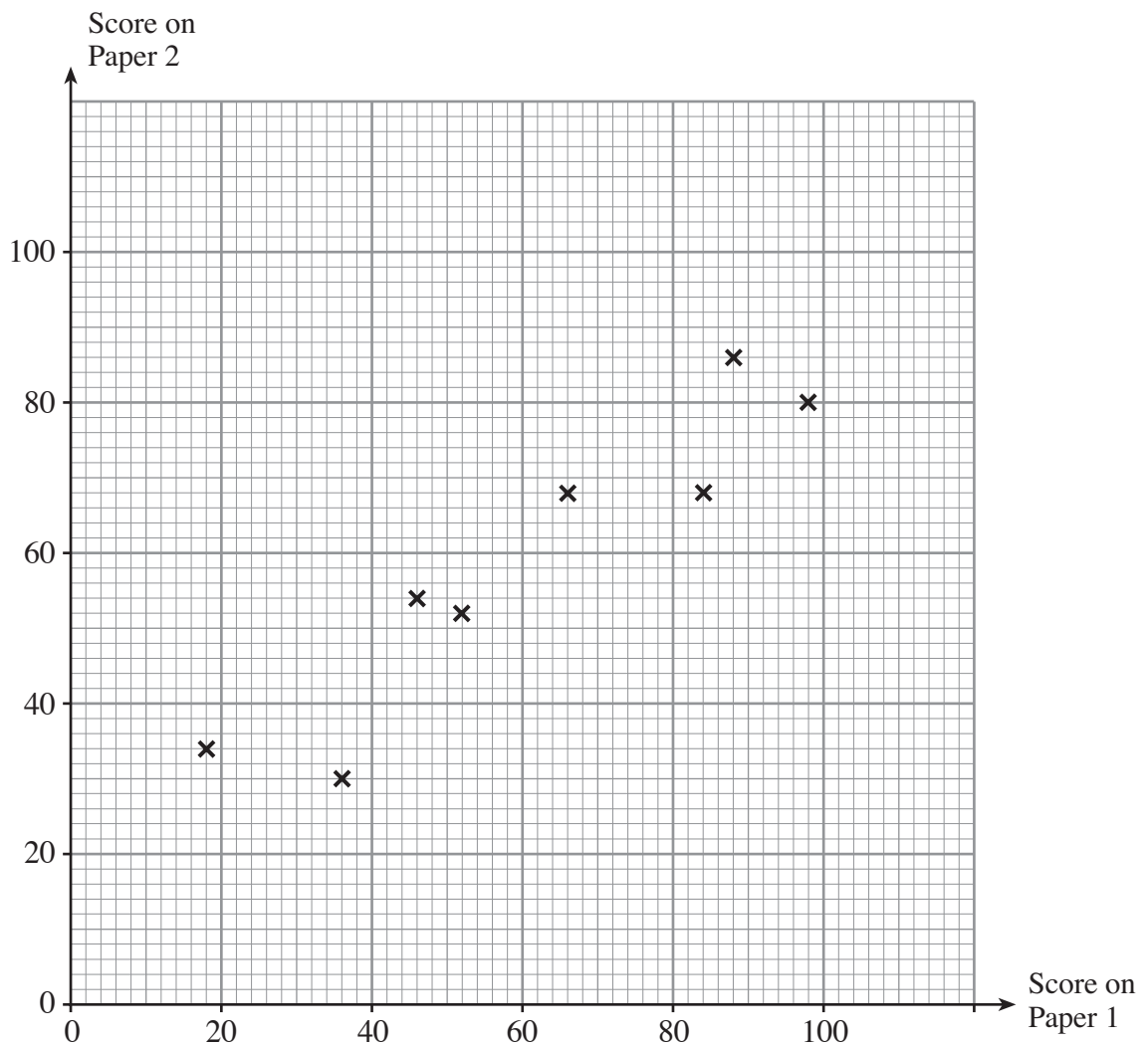
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[1]

8. The table shows the pairs of scores obtained by 8 pupils on Paper 1 and Paper 2 of a mathematics examination.

Pupil	1	2	3	4	5	6	7	8
Paper 1	18	36	88	66	98	46	52	84
Paper 2	34	30	86	68	80	54	52	68

A scatter diagram for these results is shown below.



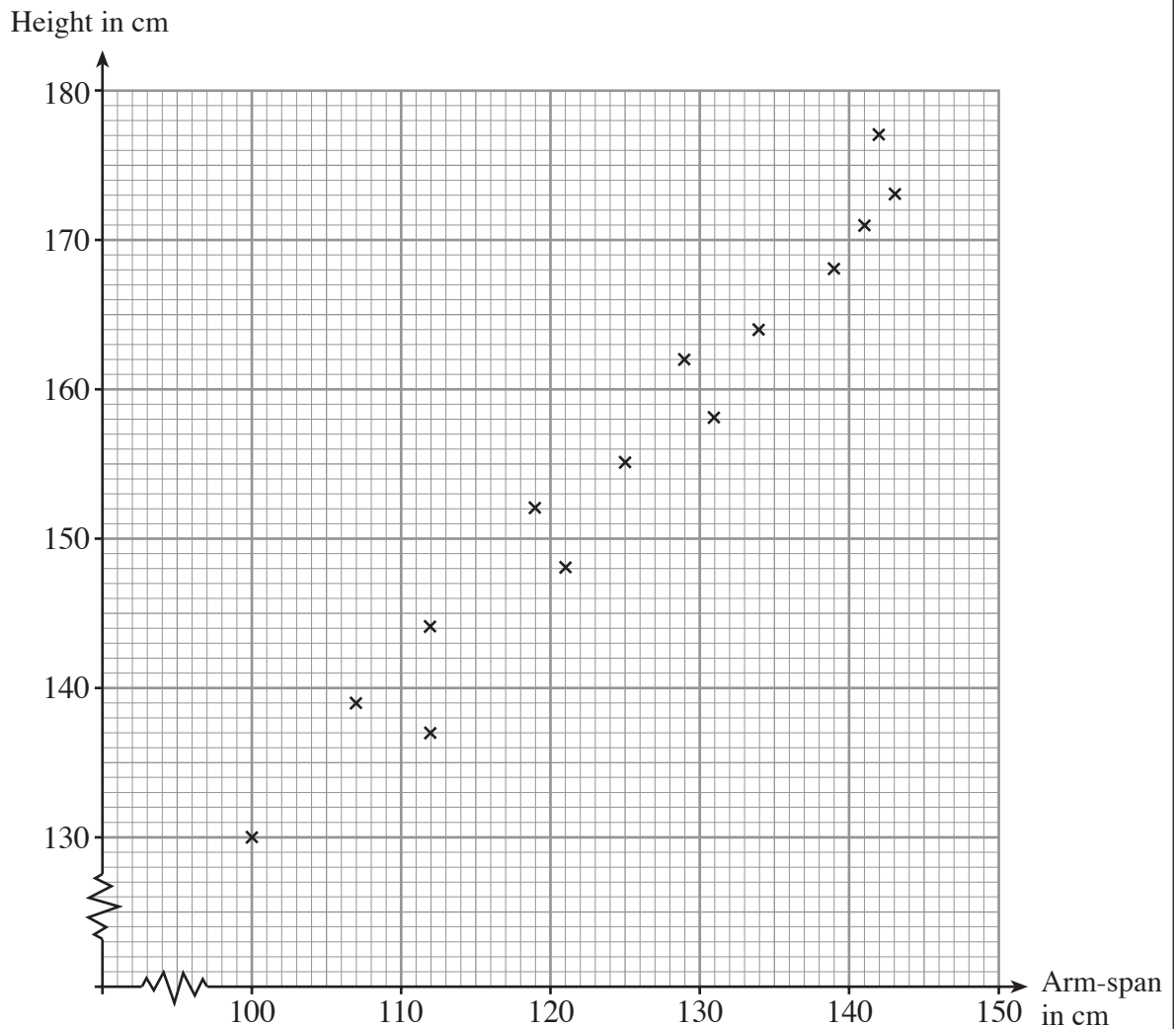
- (a) The mean mark for the pupils on Paper 1 is 61 and the mean mark on Paper 2 is 59. Draw a line of best fit on your scatter diagram.

[2]

- (b) Another pupil sat Paper 1 and was given a mark of 78, but was absent for Paper 2. Use your line of best fit to estimate the mark on Paper 2 for this pupil.
-

[1]

2. The scatter diagram shows the heights and arm-spans, in cm, of 14 people.



(a) Write down the arm-span and height of the **tallest** of the 14 people.

Arm-span cm

Height cm
[2]

(b) Write down the type of correlation shown by the scatter diagram.

.....
[1]

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

[1]

(d) Estimate the height of a person with arm-span 115 cm.

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[1]

- (e) Given an arm-span measurement what approximate rule could you use to determine an estimate for the height of a person?

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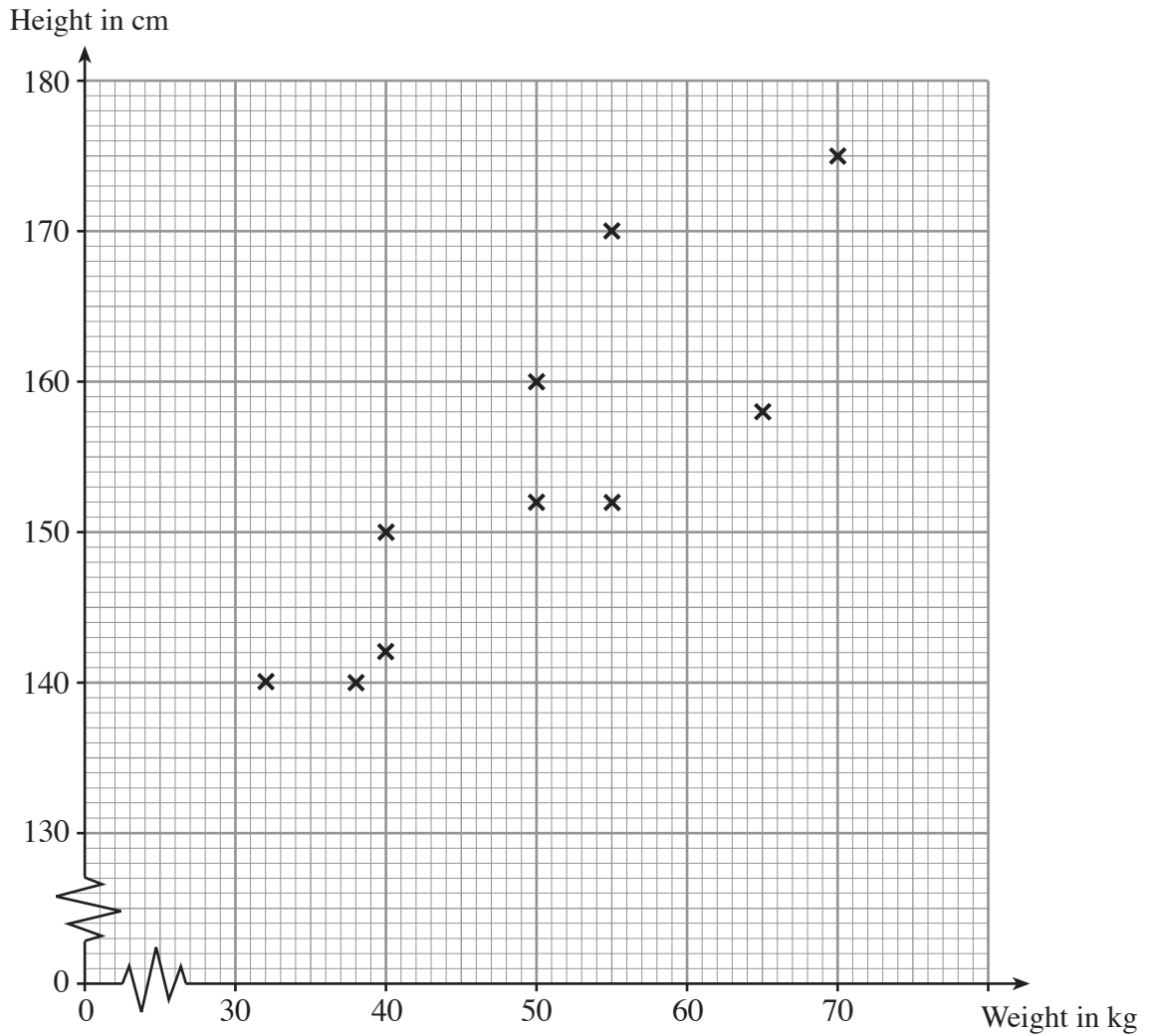
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[1]

1. The scatter diagram shows the height, in cm, and the weight, in kg, for each of 10 persons.



(a) Write down the weight and height of the **tallest** of the 10 persons.

Weight kg

Height cm

[2]

(b) Write down the type of correlation shown by the scatter diagram.

..... [1]

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

[1]

(d) Estimate the weight of a person of height 165 cm.

..... [1]

- (e) Is it possible to tell from the scatter diagram which was the first of the 10 people to be weighed and have their height measured? You must give a reason for your answer.

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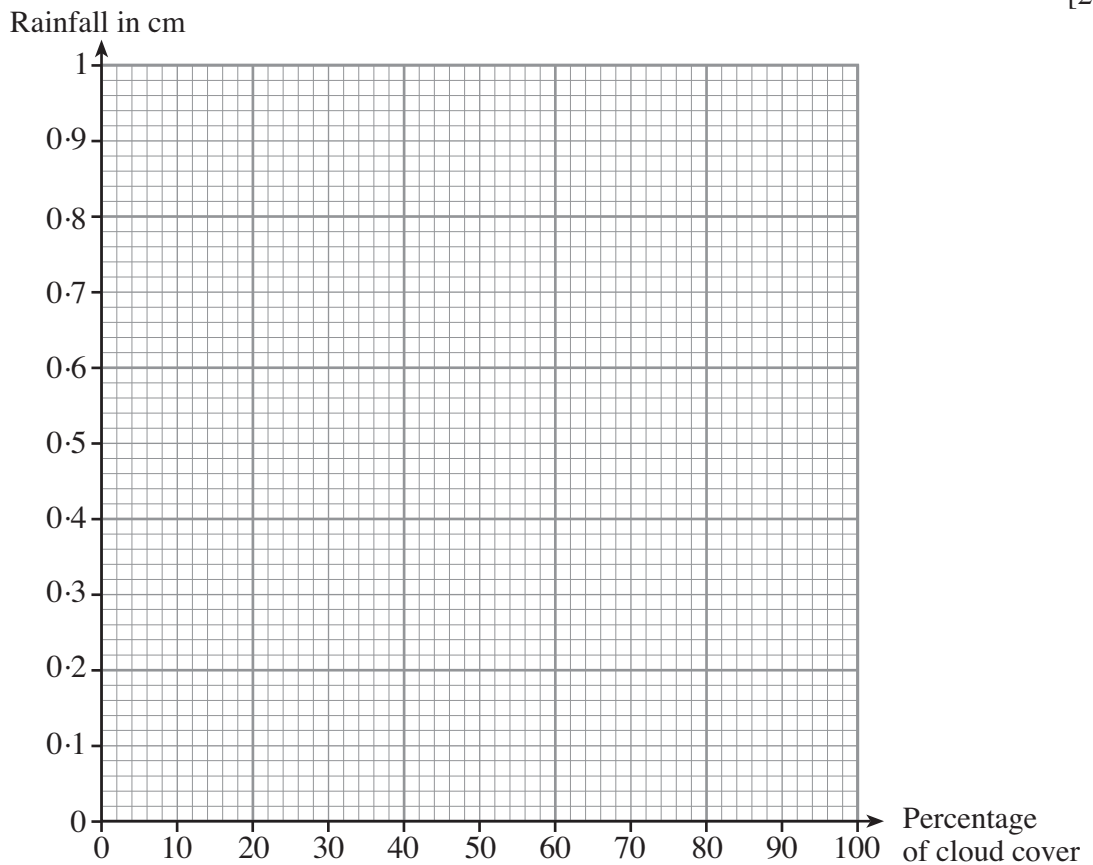
[1]

3. Every Saturday for 5 weeks in the Autumn the number of centimetres of rainfall and the average percentage of cloud cover were recorded by a group of students. The table below shows the results.

Percentage of cloud cover	55	10	60	85	5
Centimetres of rainfall	0.48	0.24	0.52	0.84	0.10

- (a) On the graph paper below, draw a scatter diagram of these results.

[2]



- (b) Describe the correlation between the average percentage of cloud cover and the amount of rainfall.

[1]

- (c) Draw, by eye, a line of best fit on your scatter diagram.

[1]

- (d) Use your line of best fit to find an estimate of the average percentage of cloud cover on a day with 0.6 cm of rainfall.

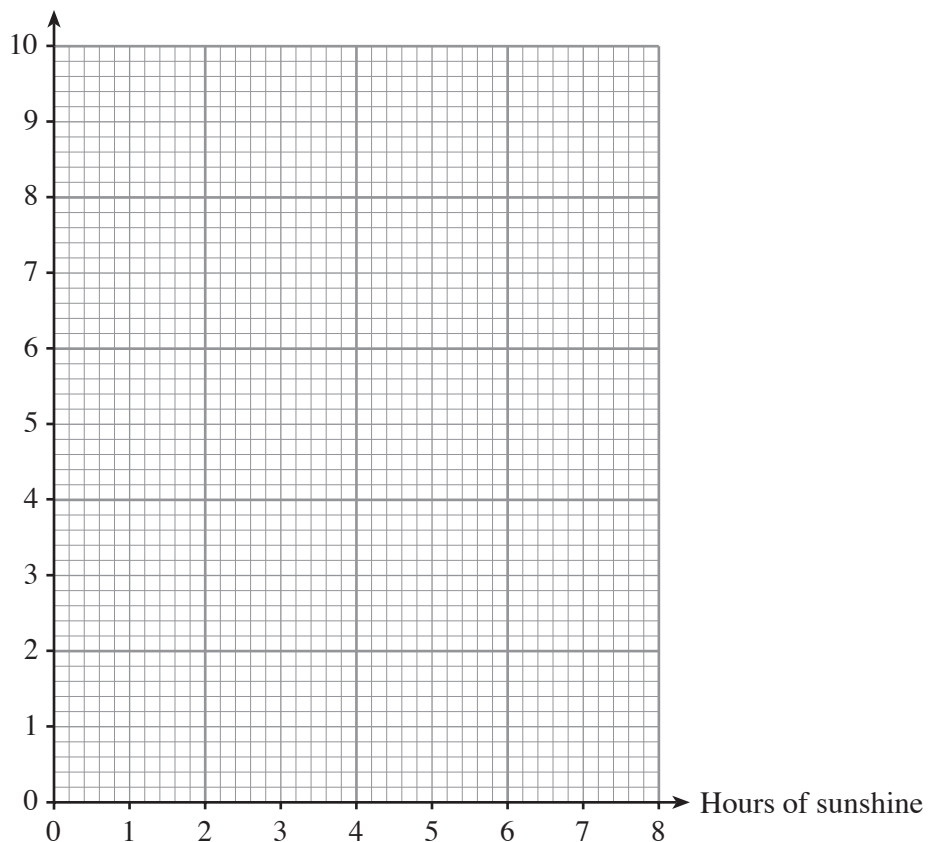
[1]

1. The number of millimetres of rainfall and number of hours of sunshine are recorded by a group of students every Monday for 5 weeks. The table below shows the results.

Number of hours of sunshine	5.5	6.5	6.0	7.9	3.0
Millimetres of rainfall	3.5	1.0	2.5	0.0	9.5

- (a) On the graph paper below draw a scatter diagram of these results. [2]

Rainfall in mm



- (b) Describe the correlation between the number of hours of sunshine and the amount of rainfall.

.....
[1]

- (c) Draw a line of best fit on your scatter diagram. [1]

- (d) Use your line of best fit to find an estimate for the number of hours of sunshine on a day with 5 mm of rainfall.

.....
[1]

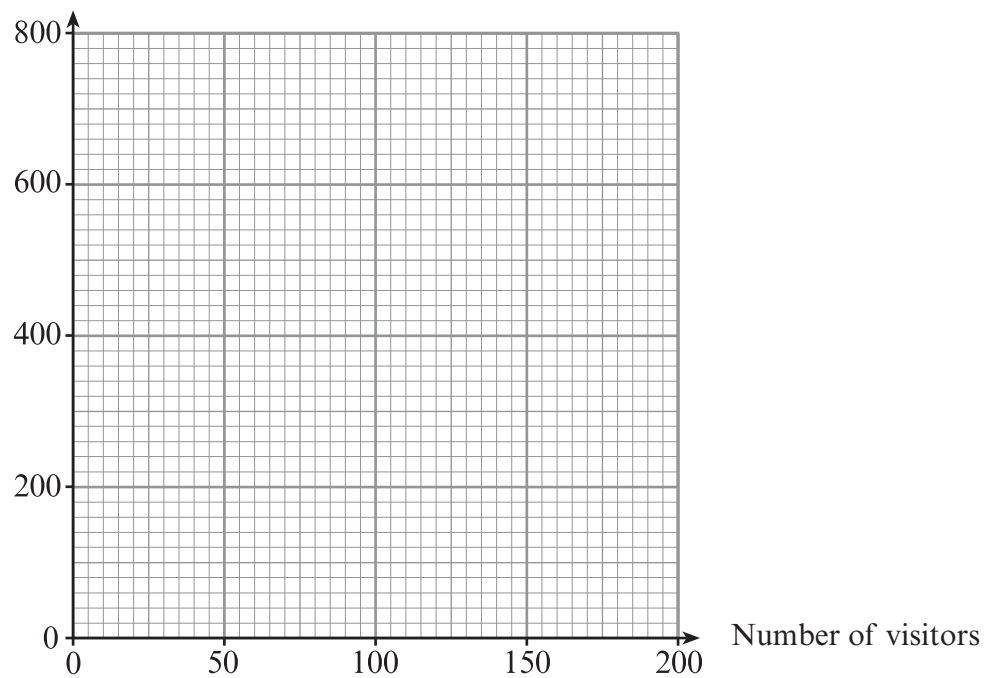
1. The number of visitors to a historical site and the total donation given were recorded each weekend for 6 weeks. The table below shows the results.

Number of visitors	90	140	10	60	100	180
Total donation, £	360	650	40	150	410	700

- (a) On the graph paper provided draw a scatter diagram of these results.

[2]

Total donation, £



- (b) Describe the correlation between the number of visitors and the total donation.

[1]

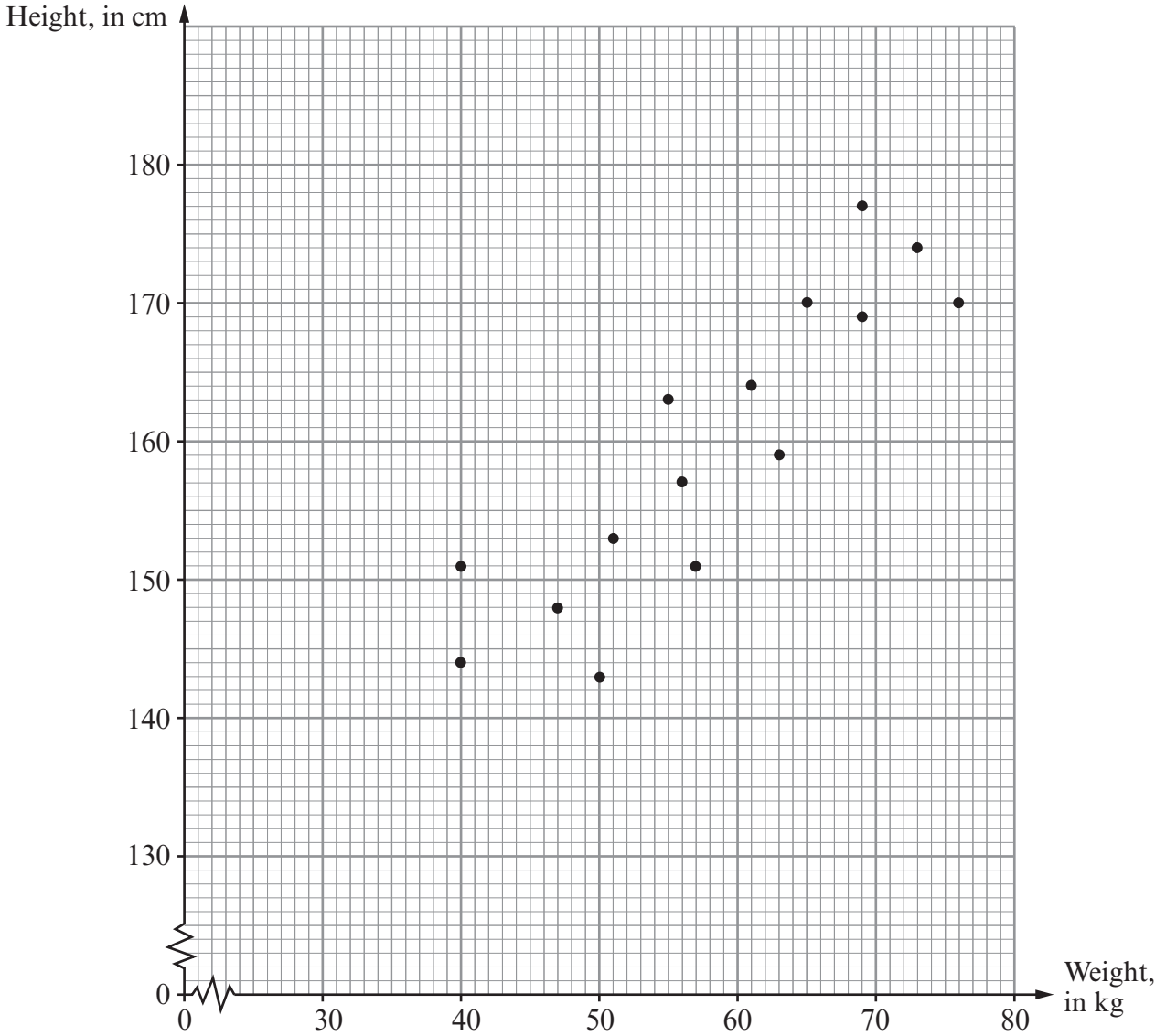
- (c) Draw, by eye, a line of best fit on your scatter diagram.

[1]

- (d) Use your line of best fit to find an estimate for the number of visitors to the historical site on a weekend when the total donation was £500.

[1]

2. The scatter diagram shows the height, in cm, and the weight, in kg, for each of 15 people.



(a) Write down the height of the heaviest of the 15 people.

Height cm
[1]

(b) Write down the weight of the shortest of the 15 people.

Weight kg
[1]

(c) Write down the type of correlation shown by the scatter diagram.

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[1]

(d) Draw, by eye, a line of best fit on the scatter diagram.

[1]

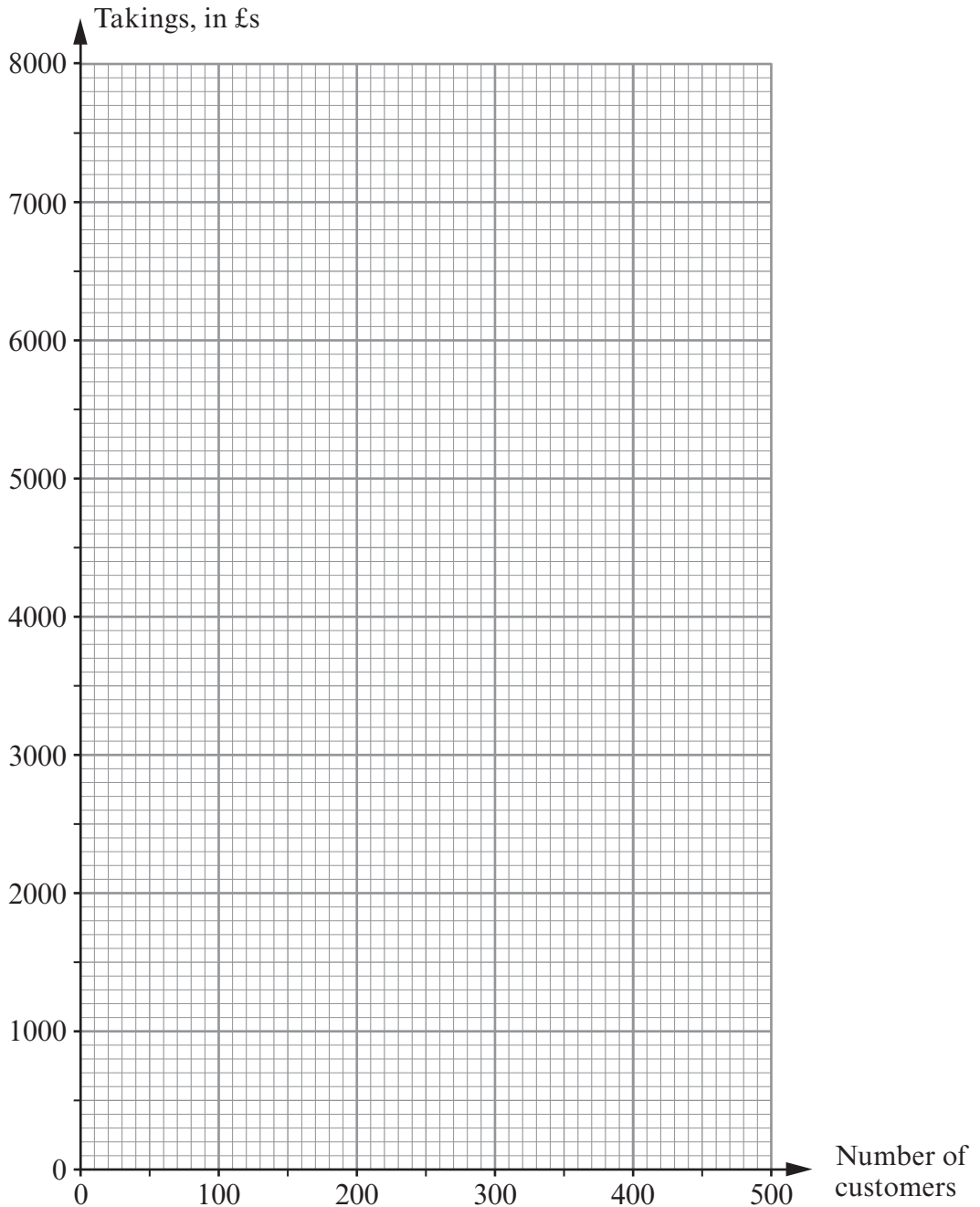
(e) Estimate the weight of a person of height 160 cm.

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[1]

1. Every Saturday for 5 weeks, the number of customers entering a shop and the takings of the shop were recorded. The table below shows the results.

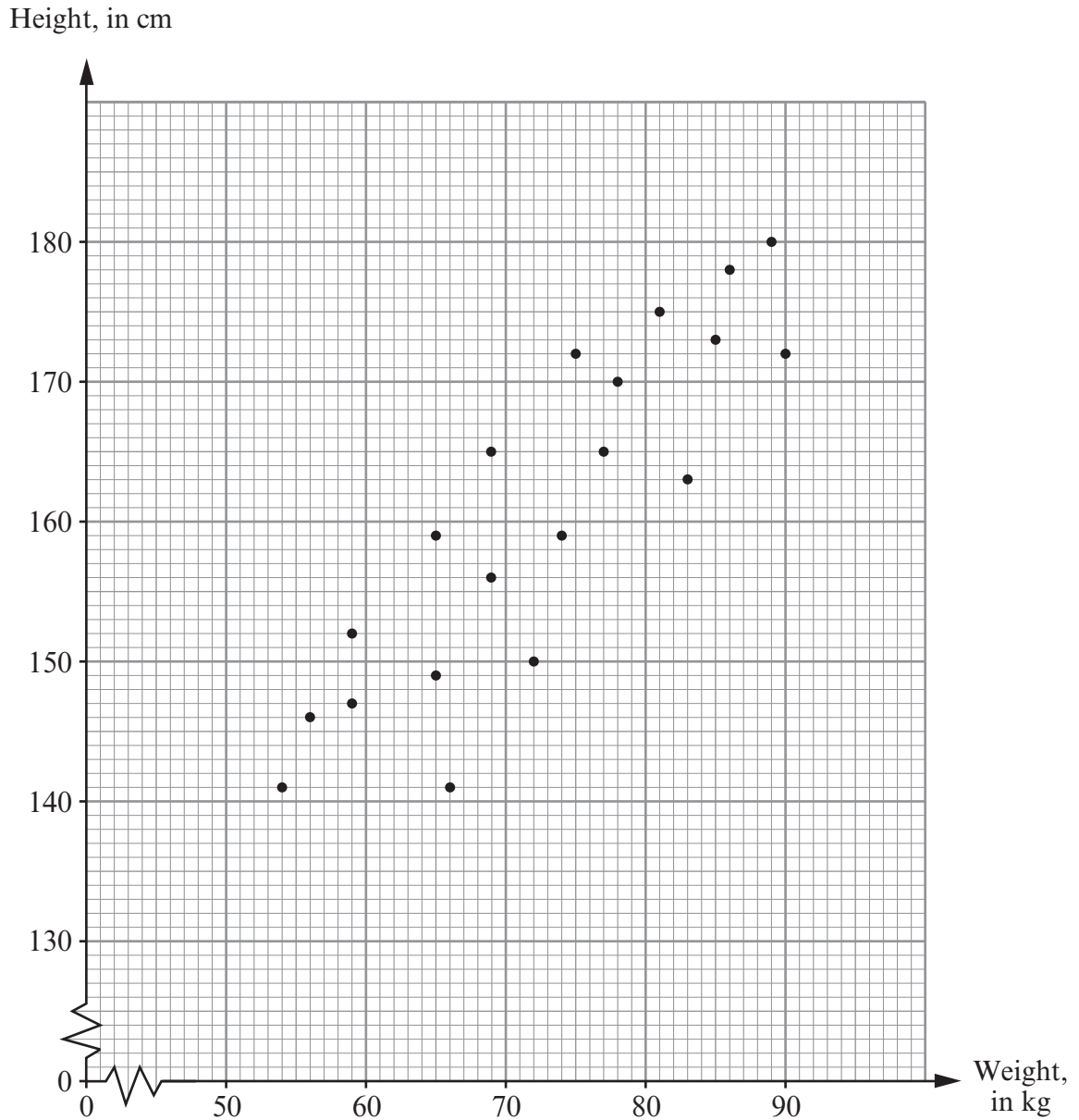
Number of customers	500	220	460	400	240
Takings, in £s	7200	2400	5000	4600	3000

- (a) On the graph paper below, draw a scatter diagram of these results. [2]



- (b) Write down the type of the correlation that is shown by the scatter diagram. [1]
- [1]
- (c) Draw, by eye, a line of best fit on your scatter diagram. [1]
- (d) Estimate the takings for a Saturday when there are 320 customers. [1]
- [1]

2. The scatter diagram shows the height, in cm, and the weight, in kg, for each of 20 members of a sports club.



- (a) Write down the height and weight of the **heaviest** of the 20 members of the sports club.

Weight kg

Height cm

[2]

(b) Write down the type of correlation shown by the scatter diagram.

..... [1]

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

[1]

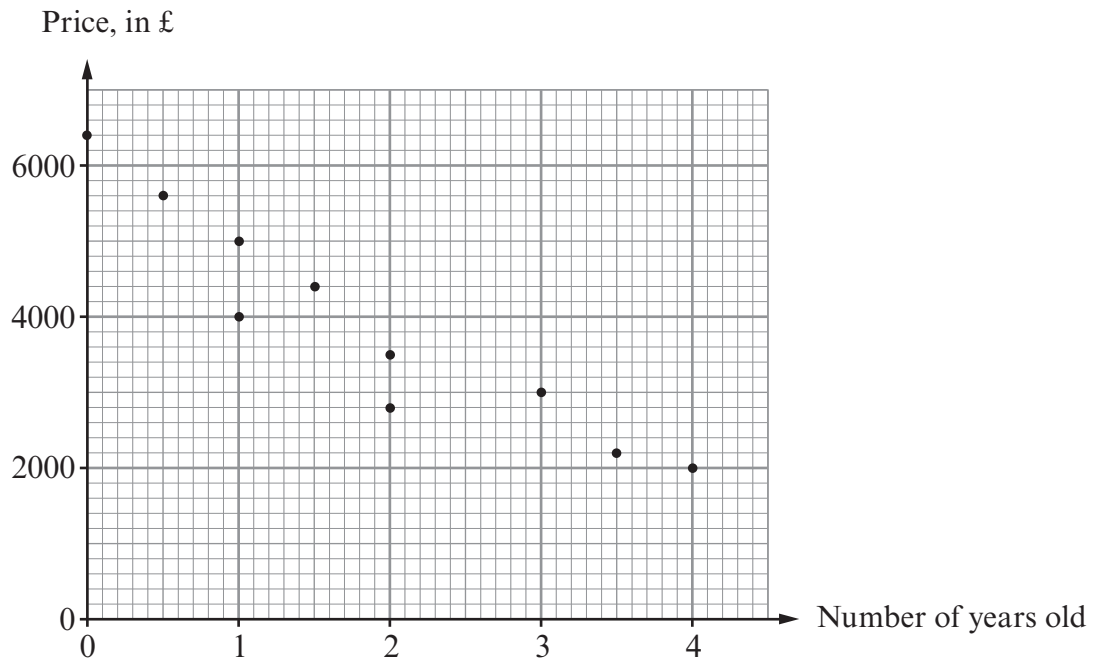
(d) Estimate the weight of a person of height 155 cm.

..... [1]

(e) Is it possible to estimate the weight of a person with a height of 210 cm from the scatter diagram? You must give a reason for your answer.

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..... [1]

1. The scatter diagram shows the price and age for each of 10 cars of the same make and model.



- (a) Write down the price of the new car.

..... [1]

- (b) Write down the price of the oldest car.

..... [1]

- (c) Draw, by eye, a line of best fit on the scatter diagram.

[1]

- (d) Write down the type of correlation shown by the scatter diagram.

..... [1]

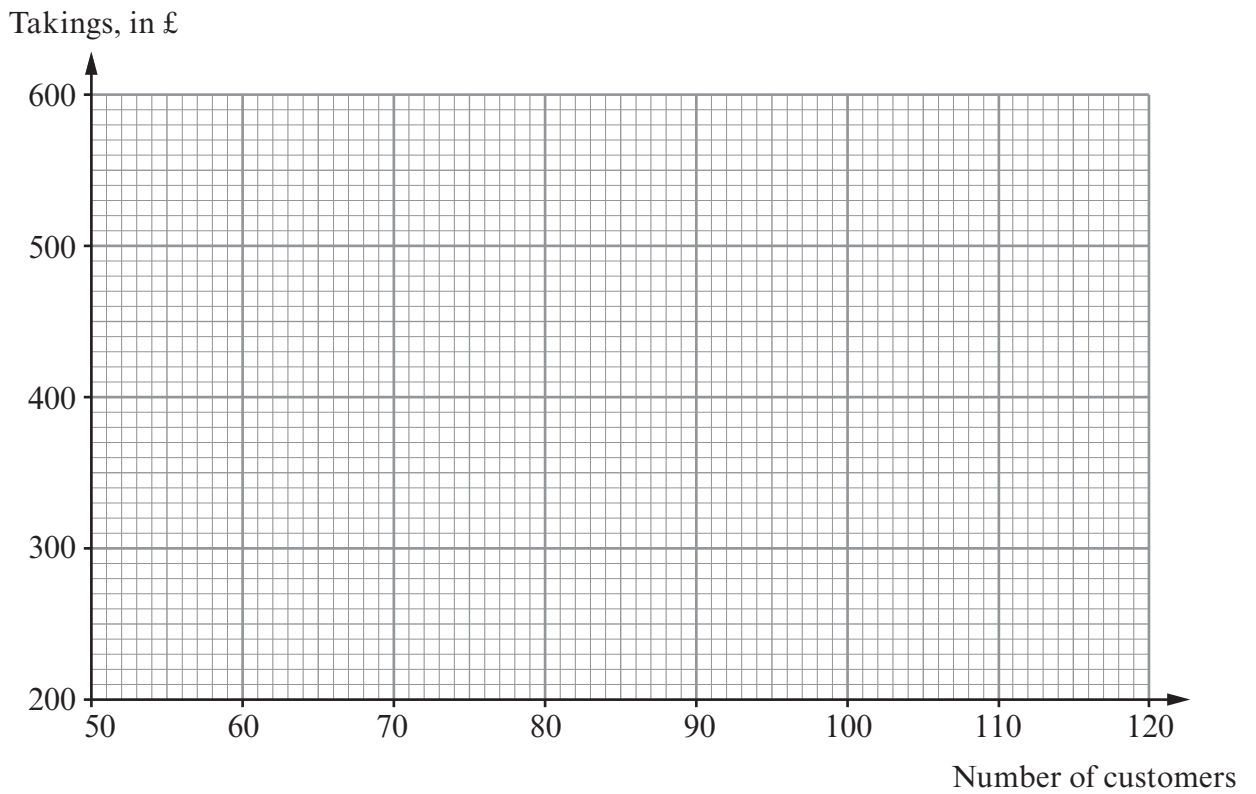
- (e) Estimate the price of a $2\frac{1}{2}$ year old car of the same make and model.

..... [1]

2. Every Friday for 6 weeks, the number of customers entering a sandwich shop and the takings of the shop were recorded. The takings were recorded correct to the nearest £10. The table below shows the results.

Number of customers	104	82	120	64	70	118
Takings, in £	510	420	590	320	340	560

- (a) On the graph paper below, draw a scatter diagram of these results.



[2]

- (b) Write down the type of correlation that is shown by the scatter diagram.

..... [1]

- (c) Draw, by eye, a line of best fit on your scatter diagram.

[1]

- (d) Estimate the takings for a Friday when there are 90 customers.

..... [1]



(e) Approximately how much does a customer spend, on average, in the sandwich shop on a Friday?

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[2]

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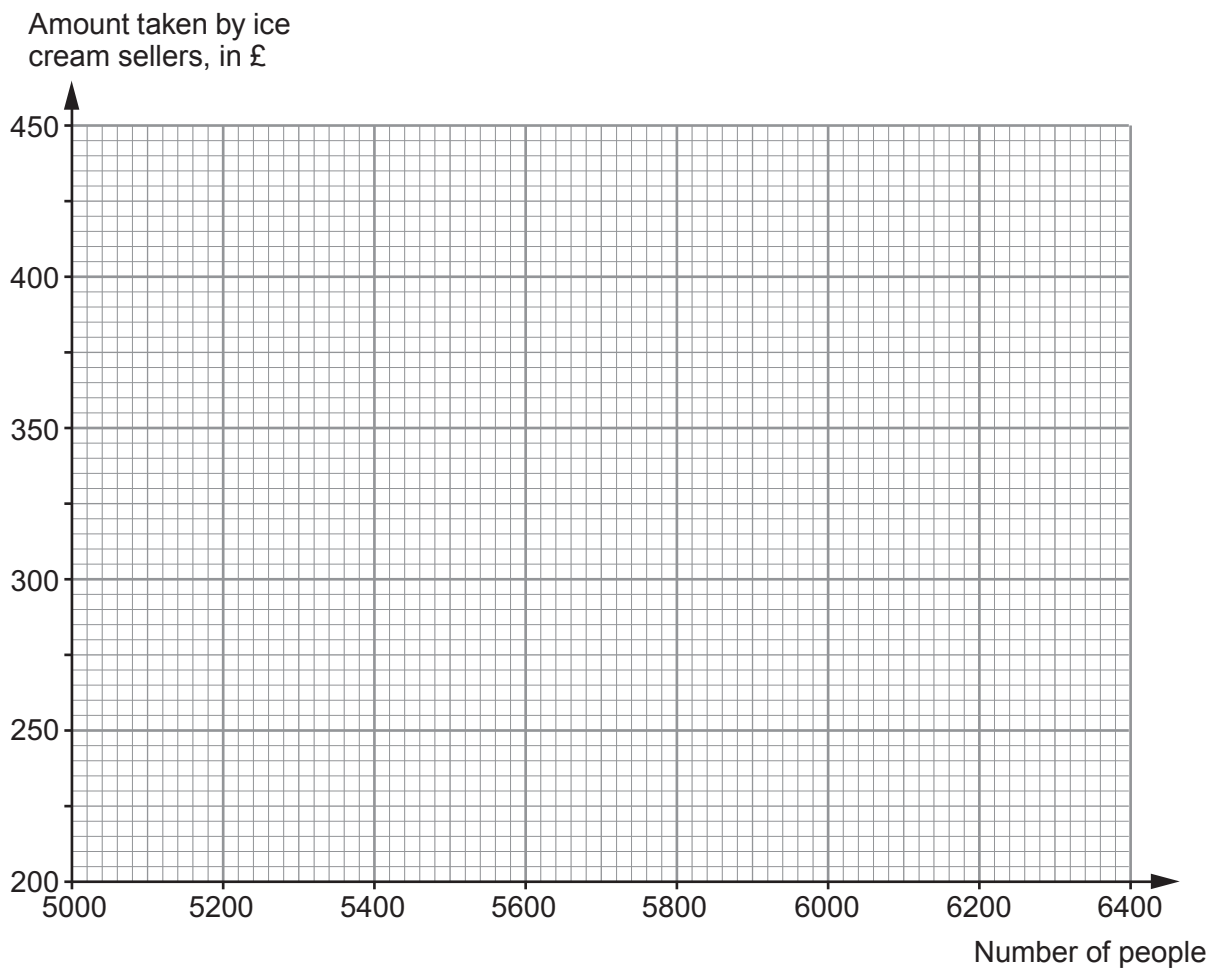


2. A festival took place over 7 days in August. Each day, the number of people at the festival and the amount of money taken by the ice cream sellers were recorded. The table below shows the results.

Number of people	5500	6000	5600	5200	5800	6400	6200
Amount taken by ice cream sellers, in £	280	400	280	210	320	420	410

- (a) On the graph paper below, draw a scatter diagram of these results.

[2]



(b) Write down the type of correlation that is shown by the scatter diagram. [1]

.....

(c) Draw, by eye, a line of best fit on your scatter diagram [1]

(d) Estimate the amount of money that may have been taken by ice cream sellers during one day had 6100 people attended the festival on that day. [1]

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(e) Explain why it is not possible to work out how much a typical ice cream costs at the festival. [1]

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