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GCSE (9-1) Grade 4 Scatter Graphs

Instructions

Use **black** ink or ball-point pen.
Fill in the boxes at the top of this page with your name.
Answer **all** questions.
Answer the questions in the spaces provided
– there may be more space than you need.
Show all your working out

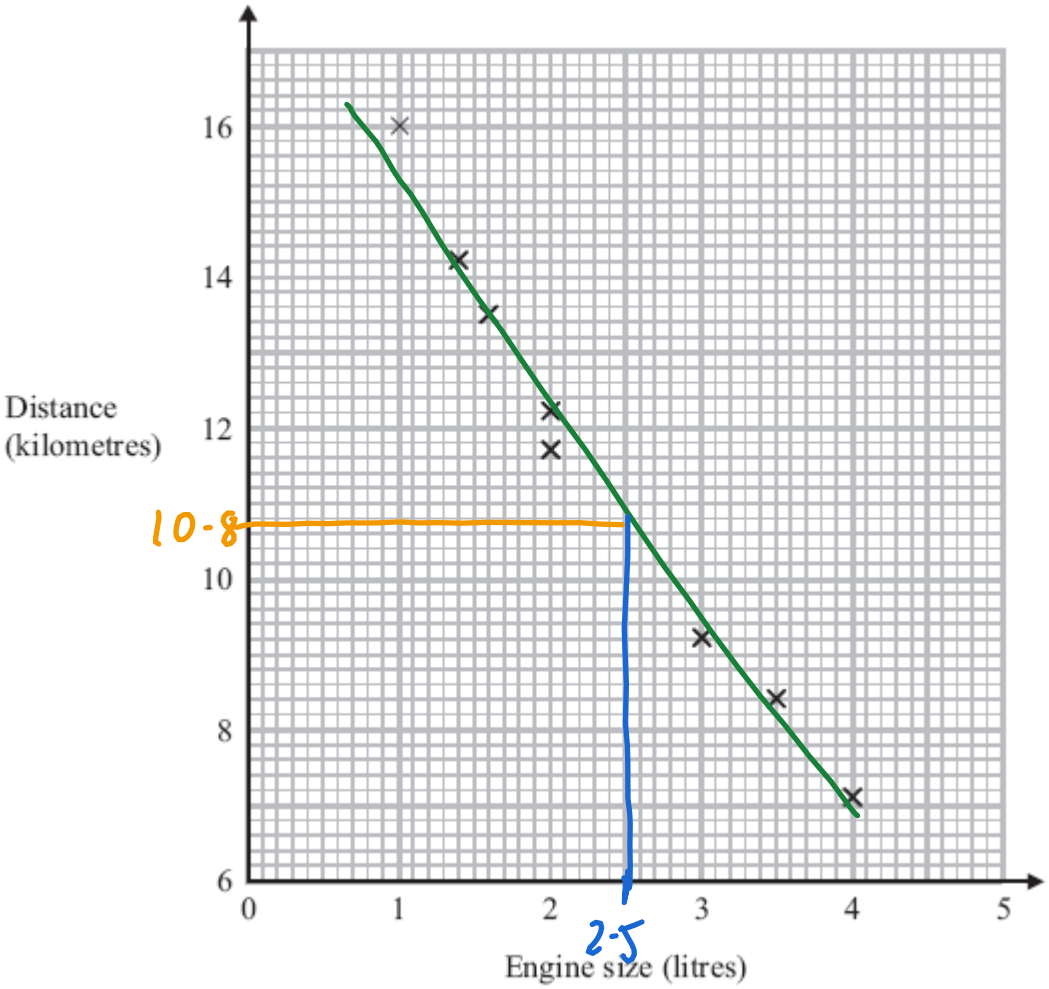
Information

The marks for **each** question are shown in brackets.
Use this as a guide as to how much time to spend on each question.
Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed

Advice

Read each question carefully before you start to answer it
Attempt every question
Check your answers if you have time at the end

1. The scatter graph shows some information about 8 cars.
For each car it shows the engine size, in litres, and the distance, in kilometres, the car travels on one litre of petrol.



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

negative

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(1)

A different car of the same type has an engine size of 2.5 litres.

(b) Estimate the distance travelled on one litre of petrol by this car.

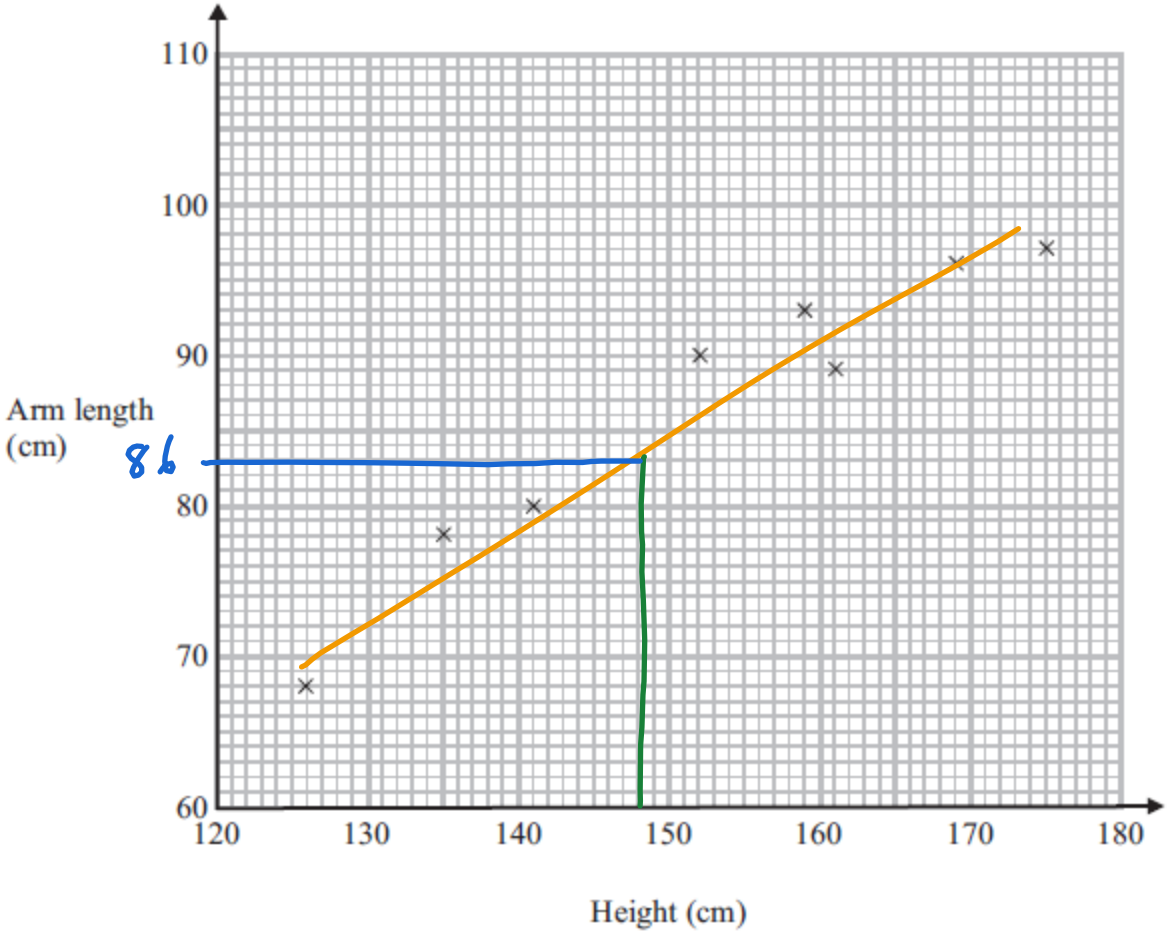
10 - 8 ..... kilometres

(2)

(3 marks)

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2. The scatter graph shows information about the height and the arm length of each of 8 students in Year 11.



(a) What type of correlation does this scatter graph show?

positive

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(1)

A different student in Year 11 has a height of 148 cm.

(b) Estimate the arm length of this student.

86 .....cm

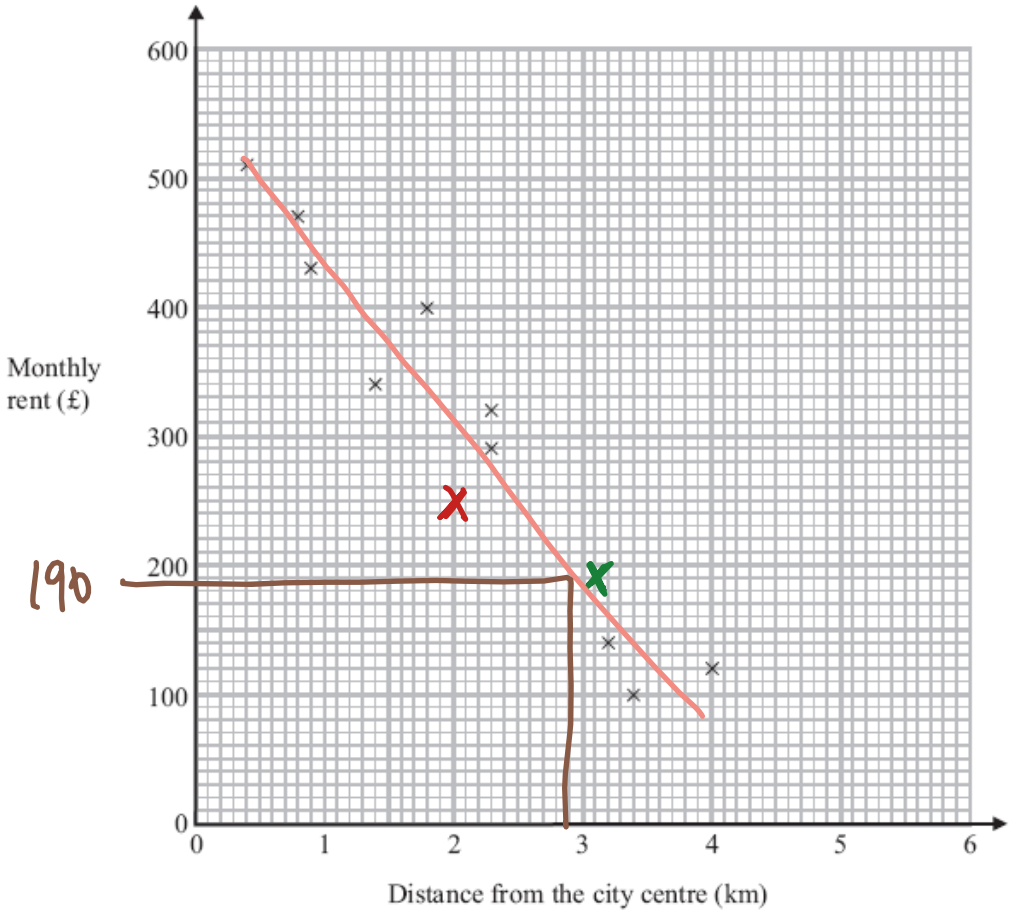
(2)

(3 marks)

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3. The scatter graph shows information about 10 apartments in a city.

The graph shows the distance from the city centre and the monthly rent of each apartment.



The table shows the distance from the city centre and the monthly rent for two other apartments.

Distance from the city centre (km)	2	3.1
Monthly rent (£)	250	190

(a) On the scatter graph, plot the information from the table.

(1)

(b) Describe the relationship between the distance from the city centre and the monthly rent.

There is a negative correlation

The further from the city centre the lower the rent.

(1)

An apartment is 2.8 km from the city centre.

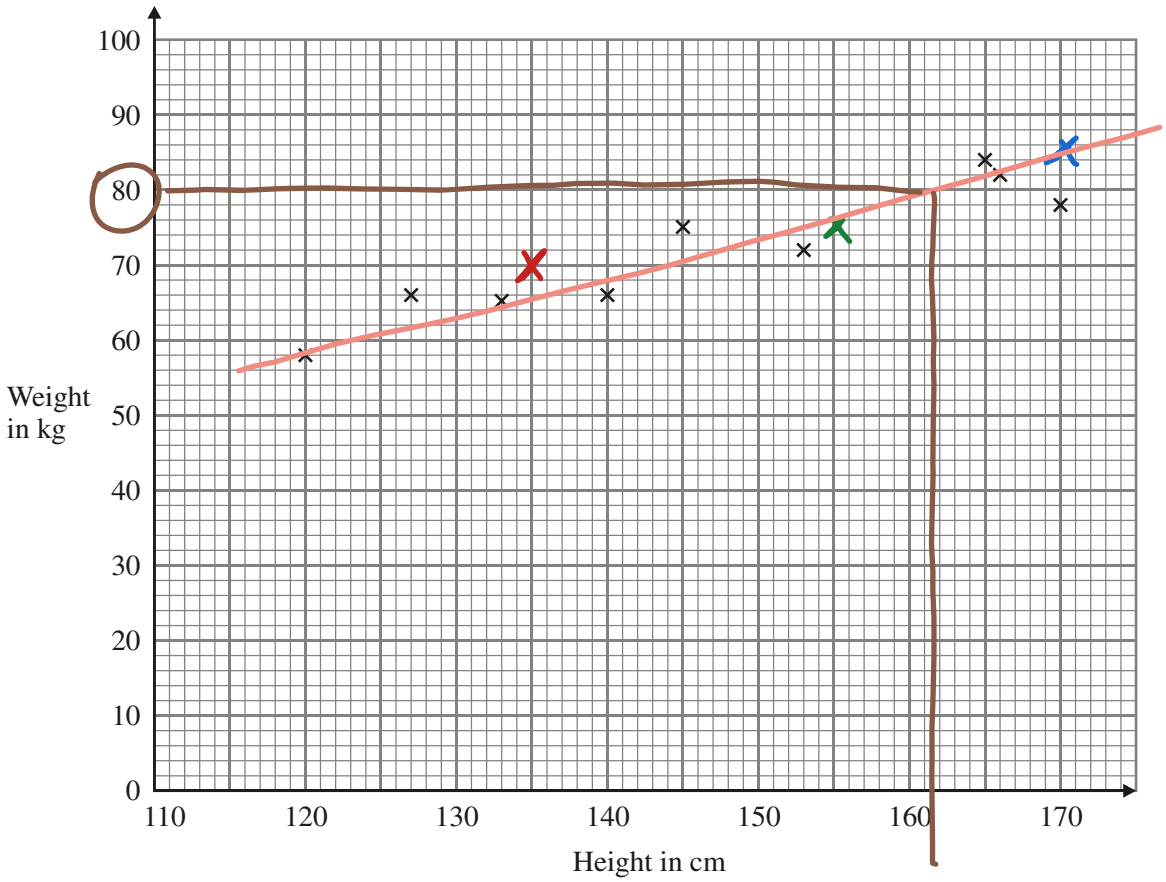
(c) Find an estimate for the monthly rent for this apartment.

£ 190

(2)

(4 marks)

4. The scatter graph shows information about the height and the weight for nine students.



The table shows the height and the weight for three more students.

Height in cm	135	155	170
Weight in kg	70	75	85

(a) On the scatter graph, plot the information from the table.

(1)

(b) What type of correlation does this scatter graph show?

positive

(1)

(c) The weight of another student is 80 kg.

Estimate the height of this student.

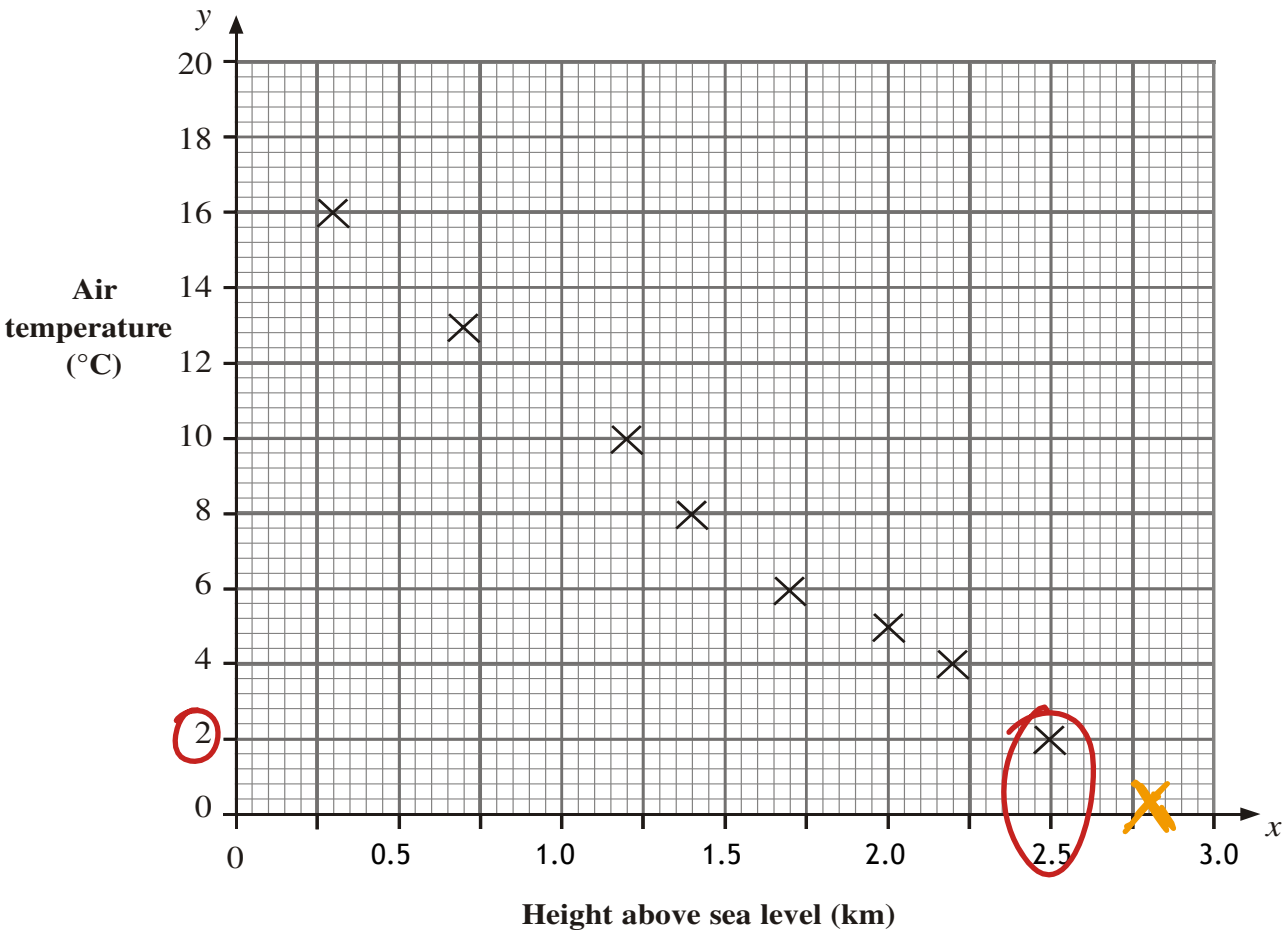
161 cm

(2)

(4 marks)

5. On a particular day, a scientist recorded the air temperature at 8 different heights above sea level. The scatter diagram shows the air temperature, y °C, at each of these heights, x km, above sea level.

Air temperature at different heights above sea level



(a) Using the scatter diagram, write down the air temperature recorded at a height of 2.5 km above sea level.

2 °C

(1)

(b) Describe the correlation between the air temperature and the height above sea level.

negative

(1)

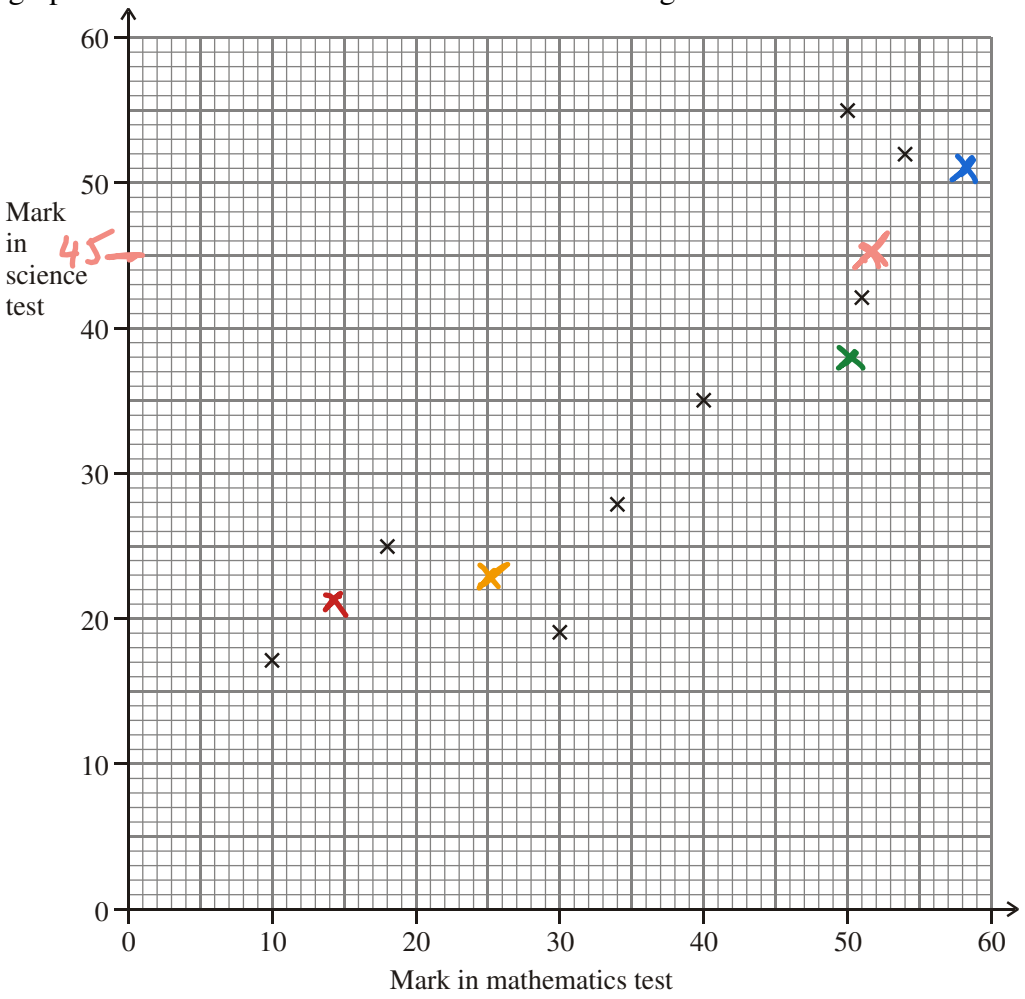
(c) Find an estimate of the height above sea level when the air temperature is 0 °C.

2.6 km

(2)

(4 marks)

6. Some students took a mathematics test and a science test.
The scatter graph shows information about the test marks of eight students.



The table shows the test marks of four more students.

Mark in mathematics test	14	25	50	58
Mark in science test	21	23	38	51

(a) On the scatter graph, plot the information from the table.

(2)

(b) Describe the correlation between the marks in the mathematics test and the marks in the science test.

positive correlation

(1)

Josef was absent for the mathematics test but his mark in the science test was 45

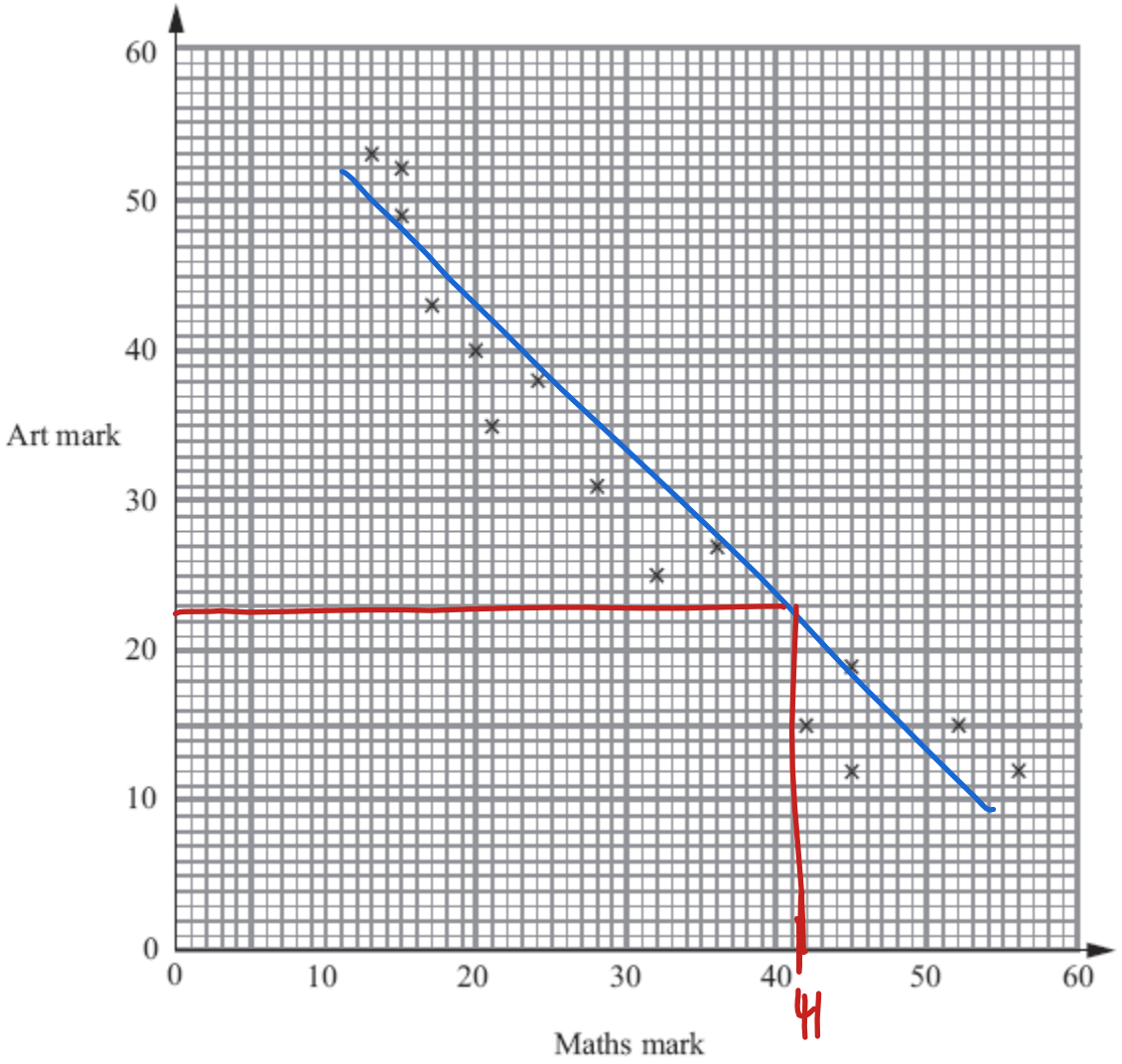
(c) Estimate Josef's mark in the mathematics test.

52

(2)

(5 marks)

7. The scatter graph shows the maths mark and the art mark for each of 15 students.



(a) What type of correlation does this scatter graph show?

(1)

Negative

.....

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

(1)

Sarah has not got a maths mark.
Her art mark is 23

(c) Use your line of best fit to estimate a maths mark for Sarah.

(1)

41

.....

(3 marks)