Scatter graphs and correlation

1

The number of people at eight barbecues and the number of burgers eaten.

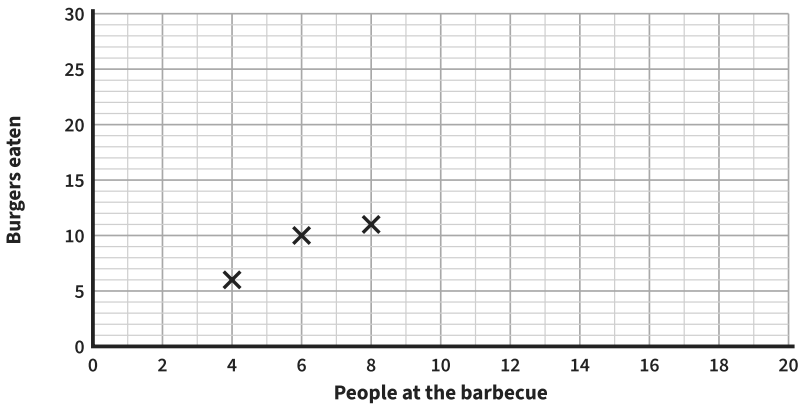
People	4	6	8	10	12	14	16	18
Burgers	6	10	11	15	16	21	22	27

(a) Plot the points as crosses.
(b) Describe the correlation. (c) Draw a line of best fit. Go up from 13 to the line, then across, to estimate the burgers eaten by 13 people.

(b) _____ correlation _____

In words: the more people, _____

(c) _____



2

The lengths and masses of eight hedgehogs at a rescue centre.

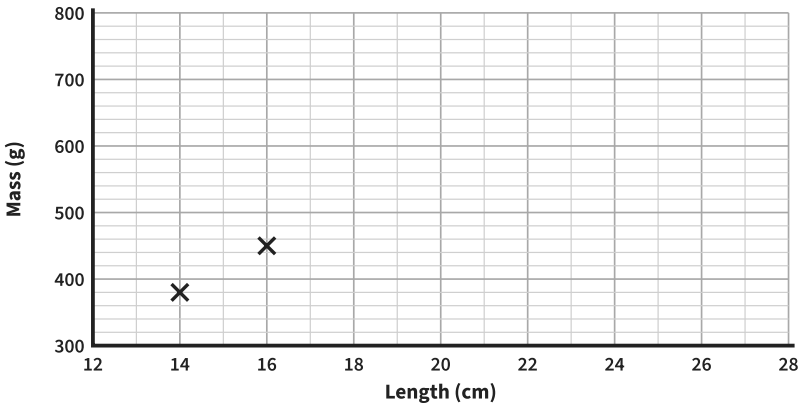
Length (cm)	14	16	18	19	21	23	24	26
Mass (g)	380	450	480	560	600	640	720	760

(a) Plot the points. (b) Describe the correlation in words. (c) Draw a line of best fit and estimate the mass of a hedgehog 20 cm long.

(b) _____ correlation _____

In words: _____

(c) _____



3

The height above sea level of eight mountain villages and the temperature at noon on one day.

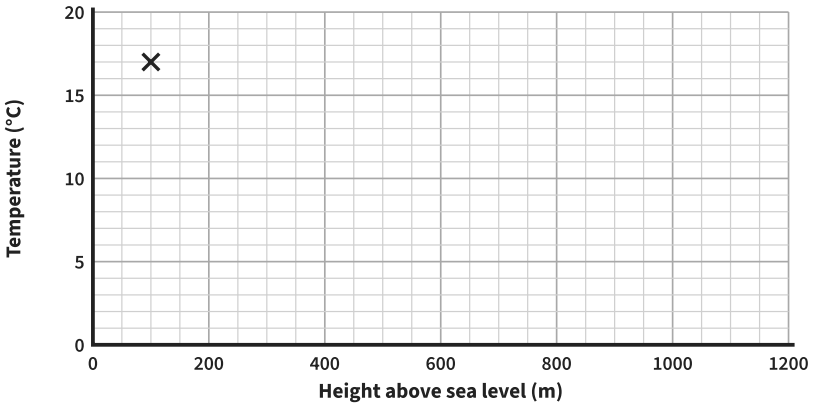
Height (m)	100	200	300	500	600	800	900	1100
Temp (°C)	17	16	16	13	11	10	8	7

(a) Plot the points. (b) Describe the correlation in words. (c) Draw a line of best fit and estimate the temperature in a village 700 m high.

(b) _____

In words: _____

(c) _____



4 *Notice the change!*

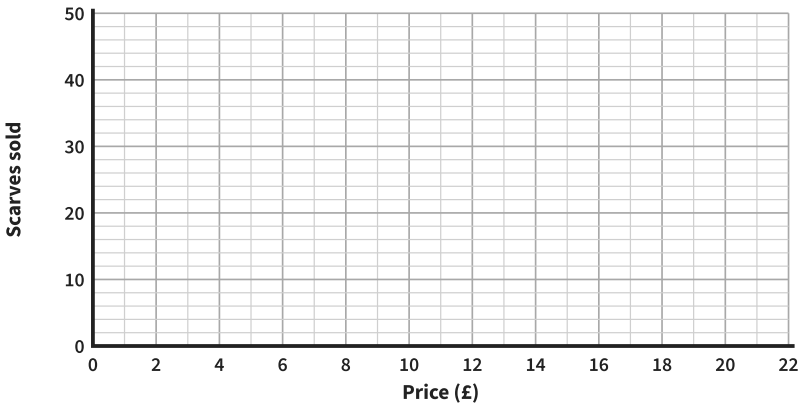
The price of a scarf in eight shops and the number of scarves each shop sold in a week.

Price (£)	6	8	10	12	14	16	18	20
Sold	46	44	37	36	31	25	22	18

(a) Plot the points. (b) Describe the correlation.
(c) Draw a line of best fit. A shop sold 30 scarves. Go across from 30 to the line, then down, to estimate its price.

(b) _____

(c) _____

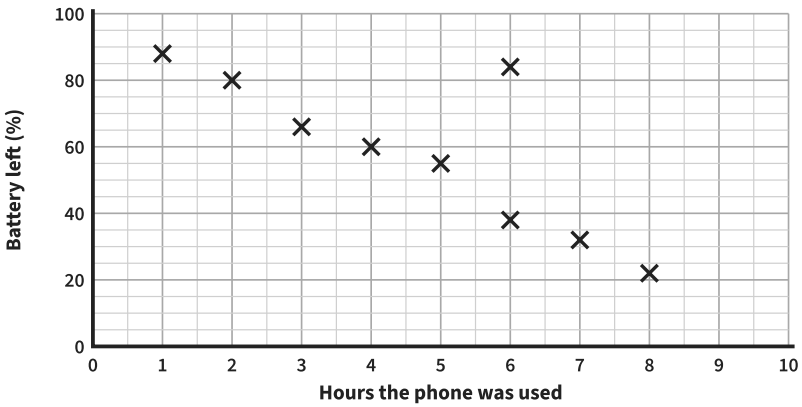


Scatter graphs and correlation

5

The scatter graph shows how many hours nine phones were used in a day and the battery left at bedtime.

(a) Circle the outlier. (b) Describe the correlation in words. (c) Leave the outlier out. Draw a line of best fit and estimate the battery left after 4.5 hours.



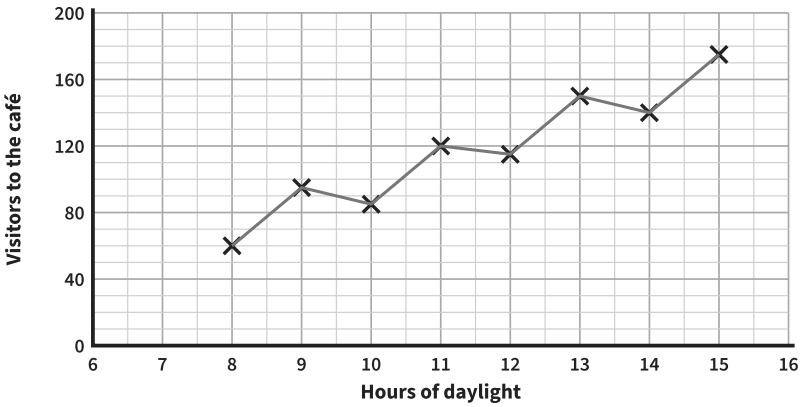
(b) _____

(c) _____

6

Ivy plotted the hours of daylight on eight days and the visitors to a park café. Then she joined the dots.

(a) What has Ivy done wrong? (b) Draw a line of best fit. Use it to estimate the visitors on a day with 12.5 hours of daylight.



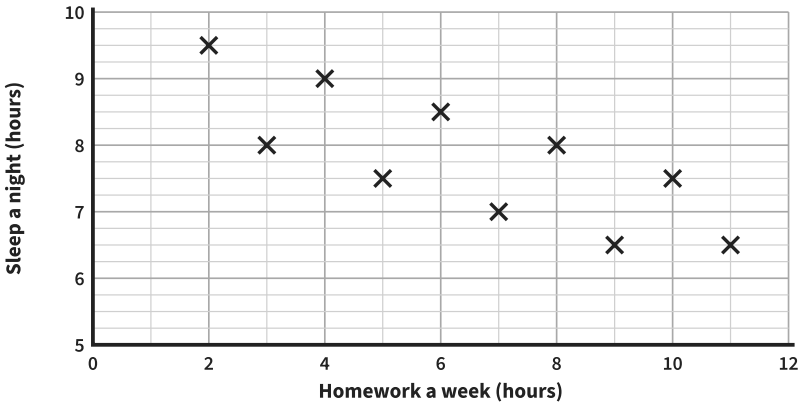
(a) _____

(b) _____

7

The scatter graph shows the hours of homework ten students did in a week and how long they slept each night.

(a) Is the correlation strong or weak? Is it positive or negative? (b) Describe the correlation in words.



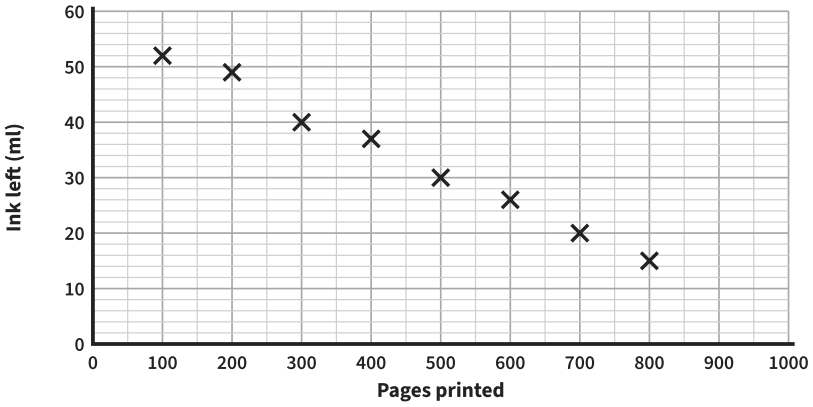
(a) _____

(b) _____

8

The scatter graph shows the ink left in a printer after printing different numbers of pages.

(a) Draw a line of best fit and estimate the ink left after 450 pages. (b) Explain why an estimate for 2000 pages would not be reliable.



(a) _____

(b) _____

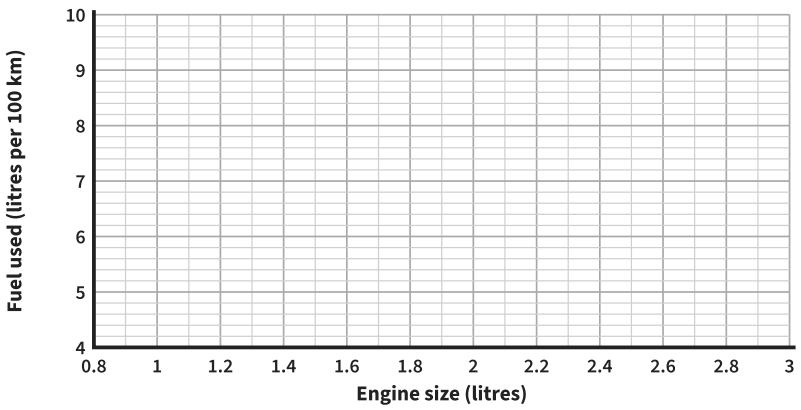
Scatter graphs and correlation *further practice*

9

Eight cars: the size of each engine and the fuel it uses to drive 100 km.

Engine (litres)	1	1.2	1.4	1.6	1.8	2	2.4	2.8
Fuel	4.6	5.4	5.5	6.4	6.6	7.4	8.2	9.4

(a) Plot the points. (b) Describe the correlation in words. (c) Estimate the fuel used by a car with a 2.2 litre engine.



(b) _____

(c) _____

10

Here are three scatter graphs.

Describe the correlation each graph shows. Say if it is strong or weak.



A _____

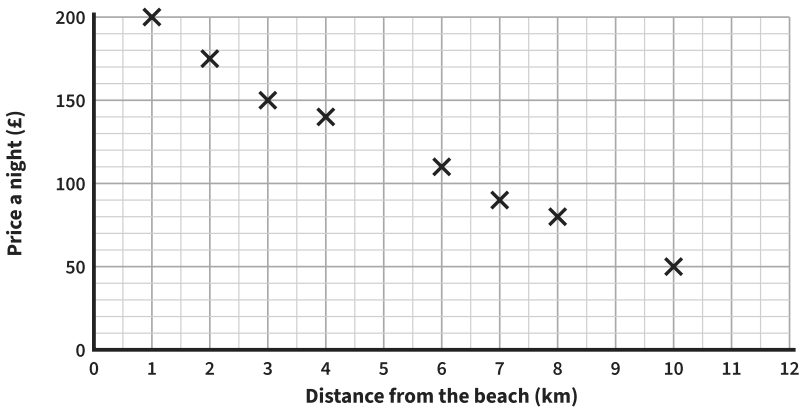
B _____

C _____

11

The scatter graph shows the distance of eight holiday cottages from a beach and the price of a night in each.

Kim can spend £120 a night. Use a line of best fit to estimate how close to the beach she can stay.



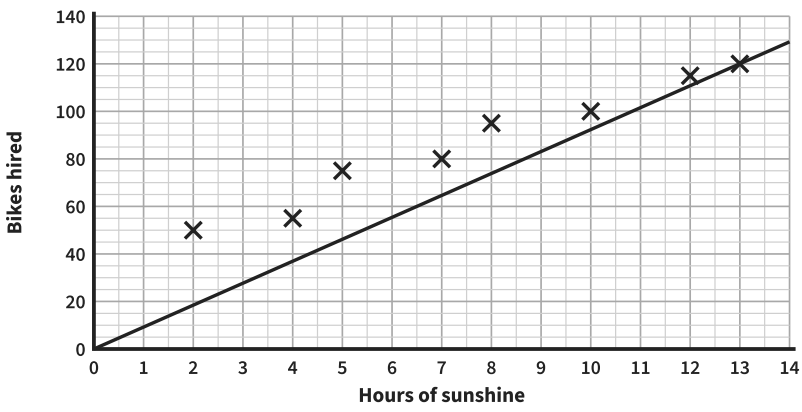
Answer _____

_____

12

Rhys drew this line of best fit for the hours of sunshine and the bikes hired from a seafront stand on eight days. He made it go through (0, 0).

(a) Why is it not a good line of best fit? (b) Draw a better one and estimate the bikes hired on a day with 6 hours of sunshine.



(a) _____

(b) _____

Scatter graphs and correlation *further practice*

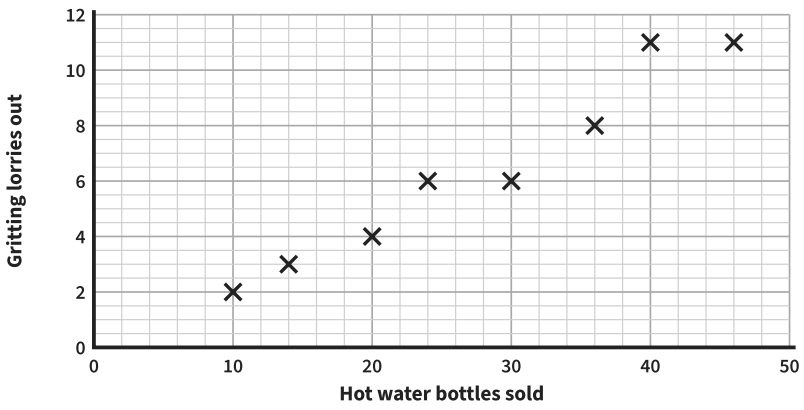
13

A town recorded the hot water bottles sold and the number of gritting lorries out in eight winter weeks.

(a) Describe the correlation. (b) Pam says selling hot water bottles makes the council send out gritting lorries. Is she right? Explain.

(a) _____

(b) _____



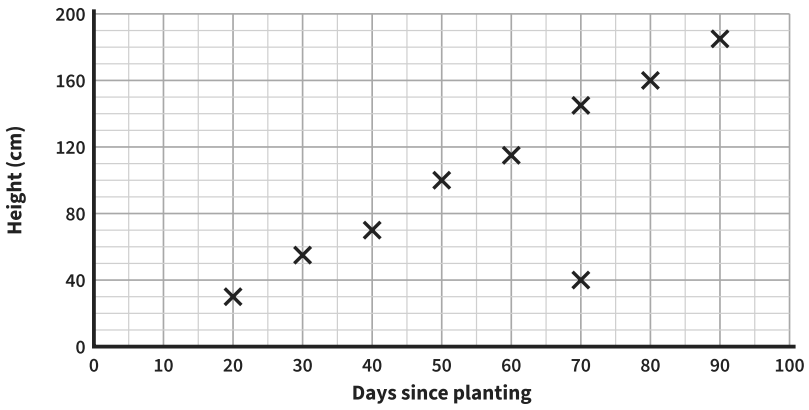
14

Eva measured nine sunflowers in her garden.

(a) Circle the outlier and give a reason it might not fit. (b) Leave it out. Estimate the height of a sunflower 55 days after planting.

(a) _____

(b) _____



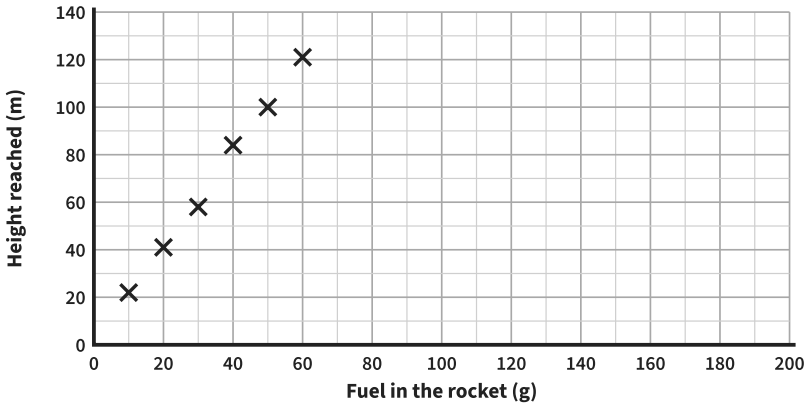
15

A club launched six model rockets with different amounts of fuel and measured how high each went.

Bo uses a line of best fit to estimate the height for 35 g of fuel and for 180 g. Which estimate is more reliable? Explain.

Answer _____

_____



16

Eight leaves from one tree. The length of the leaf 5 cm wide is missing. The graph shows the other seven.

Width (cm)	2	3	4	5	6	7	8	9
Length (cm)	5	7	8		13	14	17	18

Suggest a length for the missing leaf.
Explain how you chose it.

Length _____

Because _____

