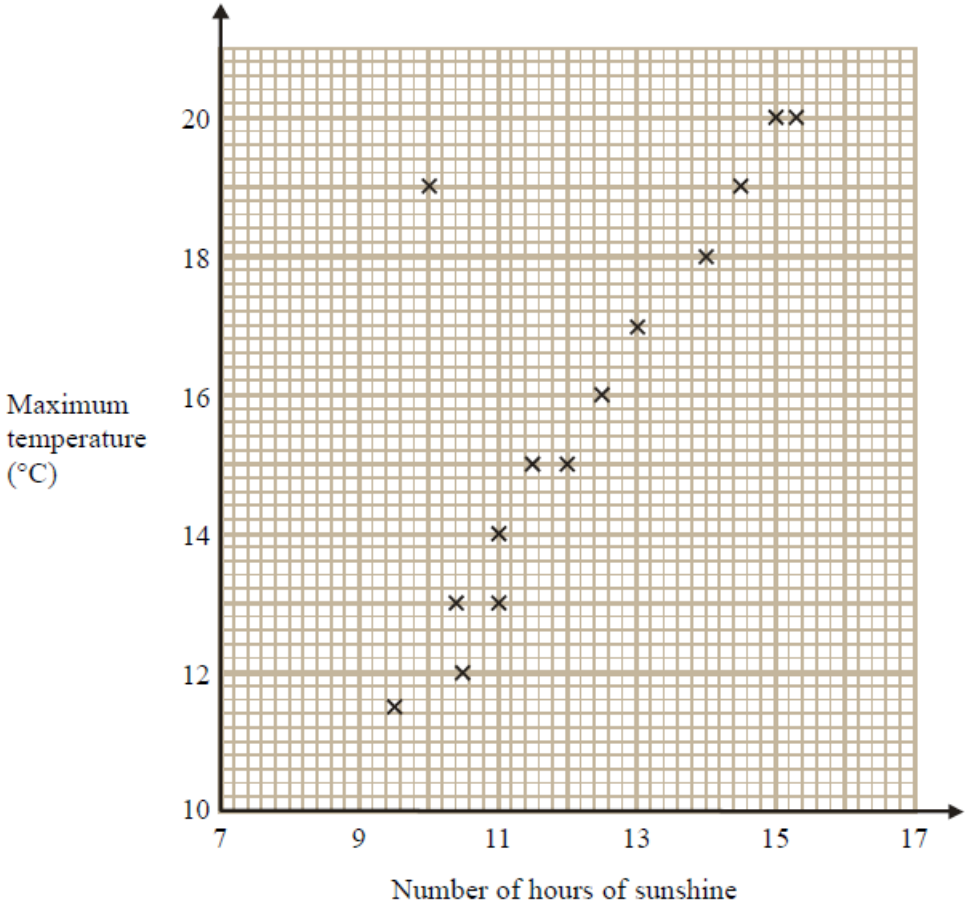
Mixed Exercise 1

1.

The scatter graph shows the maximum temperature and the number of hours of sunshine in fourteen British towns on one day.



One of the points is an outlier.

(a) Write down the coordinates of this point.

(……, ……)

(1)

(b) For all the other points write down the type of correlation.

……

(1)

On the same day, in another British town, the maximum temperature was 16.4 °C.

(c) Estimate the number of hours of sunshine in this town on this day.

…… hours

(2)

A weatherman says,

"Temperatures are higher on days when there is more sunshine."

(d) Does the scatter graph support what the weatherman says?
Give a reason for your answer.

.....

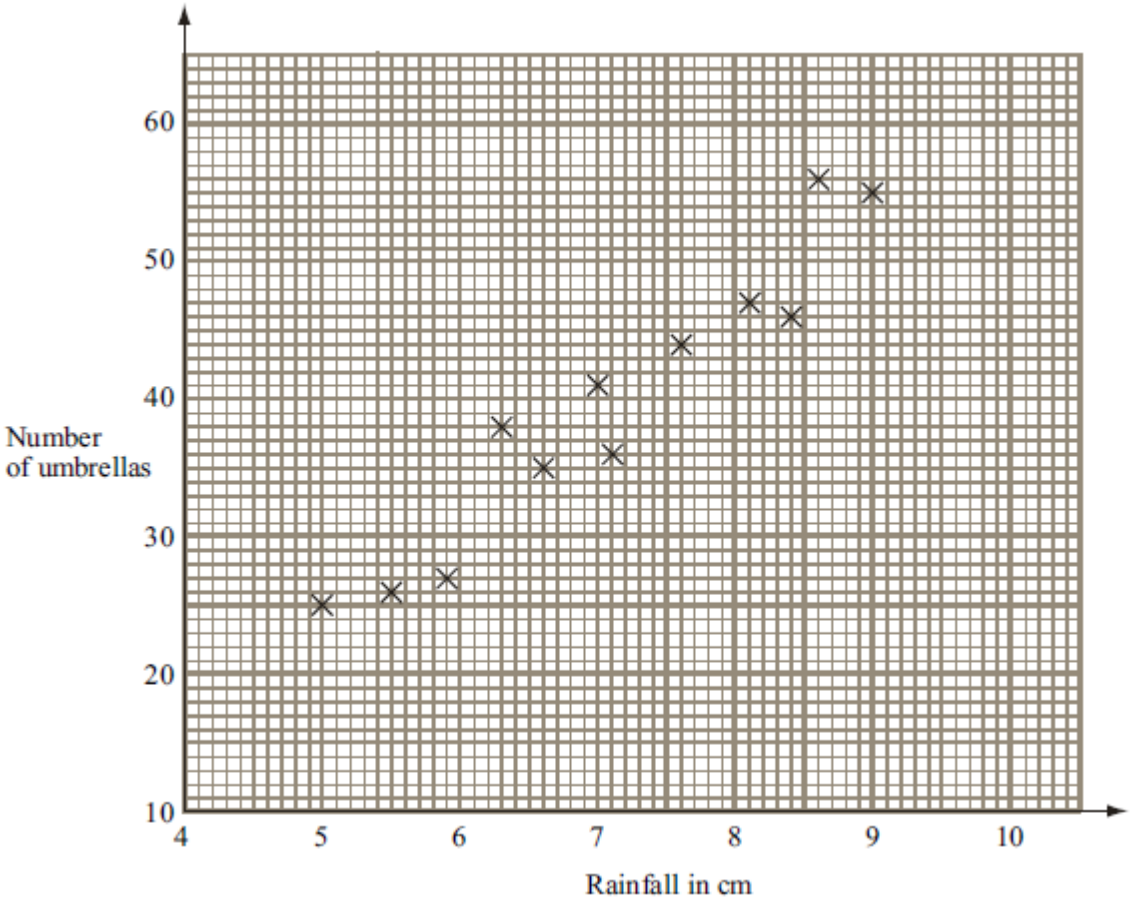
.....

(1)

2.

Mr Wither sells umbrellas.

The scatter graph shows some information about the number of umbrellas he sold and the rainfall, in cm, each month last year.



In January of this year, the rainfall was 6.1 cm.
During January, Mr Wither sold 32 umbrellas.

(a) Show this information on the scatter graph.

(1)

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

.....

(1)

In February of this year, Mr Wither sold 40 umbrellas.

(c) Estimate the rainfall for February.

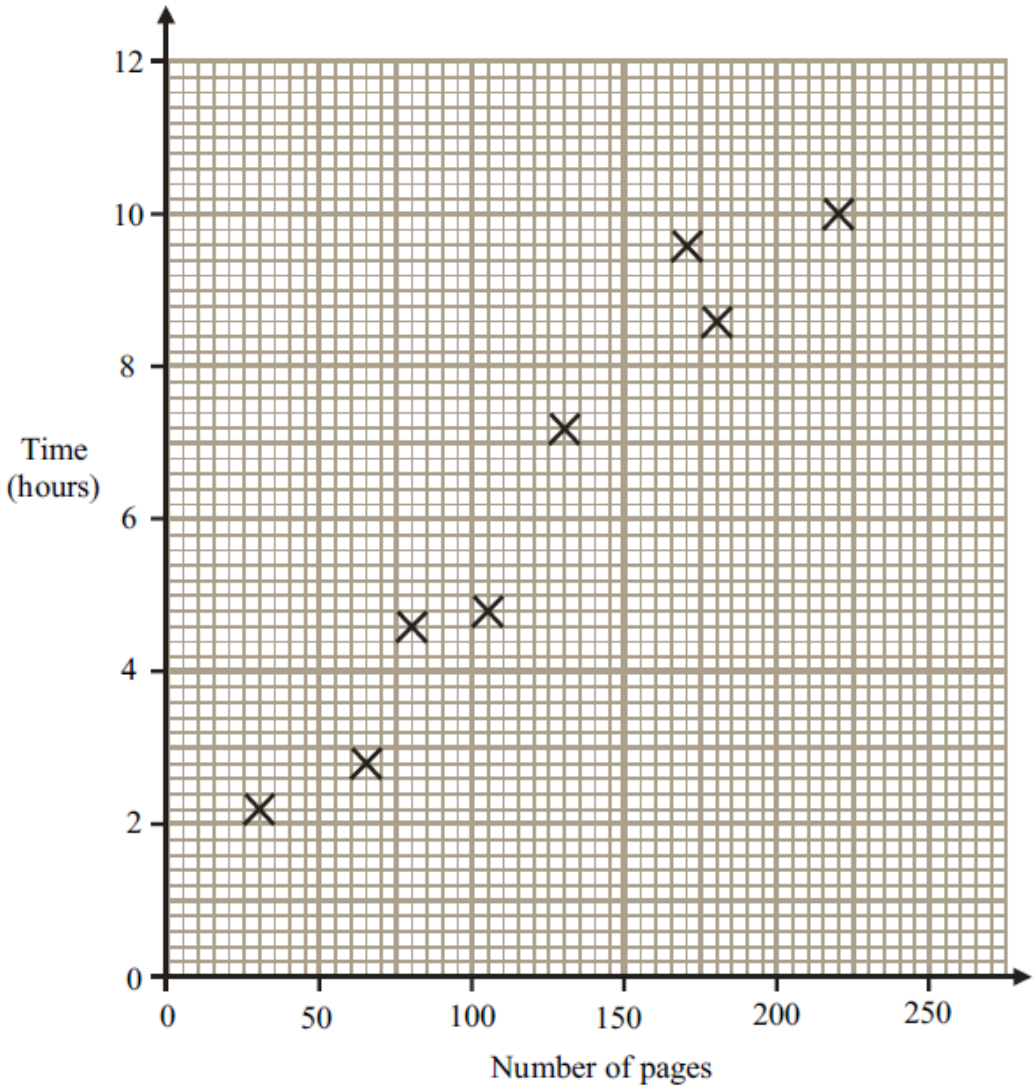
..... cm
(2)

3.

Harriet reads eight books.

For each book she recorded the number of pages and the time she takes to read it.

The scatter graph shows information about her results.



(a) Describe the relationship between the number of pages in a book and the time Harriet takes to read it.

.....

(1)

Harriet reads another book.
The book has 150 pages.

(b) Estimate the time it takes Harriet to read it.

..... hours
(2)

4.

Express 56 as the product of its prime factors.

.....

5.

(a) Express 45 as a product of its prime factors.

.....
(2)

(b) Find the Highest Common Factor (HCF) of 45 and 30

.....
(2)

6.

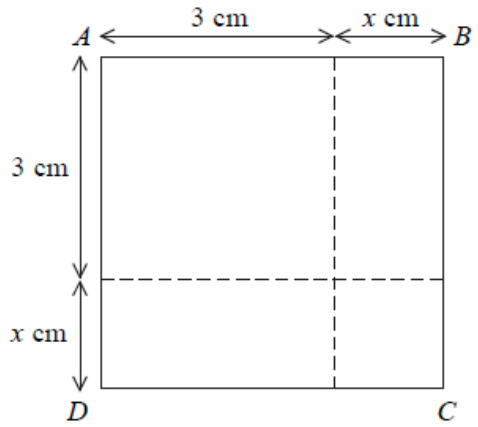
Buses to Acton leave a bus station every 24 minutes.
Buses to Barton leave the same bus station every 20 minutes.

A bus to Acton and a bus to Barton both leave the bus station at 9 00 am.

When will a bus to Acton and a bus to Barton next leave the bus station at the same time?

.....

7.



The area of square $ABCD$ is 10 cm^2.

Show that $x^2 + 6x = 1$

8.

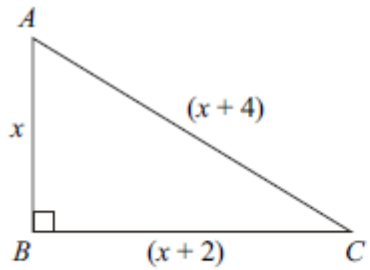


Diagram **NOT** accurately drawn

ABC is a right-angled triangle.
All the measurements are in centimetres.

$AB = x$
$BC = (x + 2)$
$AC = (x + 4)$

(a) Show that $x^2 - 4x - 12 = 0$

(3)

(b) (i) Solve $x^2 - 4x - 12 = 0$

.....

(ii) Hence, write down the length of *AC*.

$AC =$ ..... cm

(4)

9.

The diagram below shows a large rectangle of length $(2x + 6)$ cm and width x cm.

A smaller rectangle of length x cm and width 3 cm is cut out and removed.

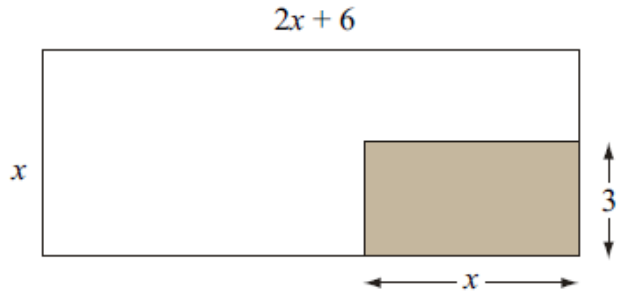


Diagram **NOT** accurately drawn

The area of the shape that is left is 100 cm^2.

(a) Show that $2x^2 + 3x - 100 = 0$

(3)

(b) Calculate the length of the smaller rectangle.
Give your answer correct to 3 significant figures.

..... cm

(4)