Chapter 9

Statistics

01. 0580_m24_qp_22 Q: 5

There are 20 cars in a car park and 3 of the cars are blue.

(a) James wants to draw a pie chart to show this information.

Find the angle of the sector for the blue cars in this pie chart.

..... [2]

(b) One of the 20 cars is picked at random.

Find the probability that this car is **not** blue.

..... [1]

---

02. 0580_m24_qp_22 Q: 7

As the temperature increases, the number of people who go swimming increases.

Write down the type of correlation that this statement describes.

..... [1]

---

03. 0580_m24_qp_22 Q: 17

The height of each of 200 people is measured.
The table shows the results.

Height (h cm)	$100 < h \leqslant 120$	$120 < h \leqslant 130$	$130 < h \leqslant 150$	$150 < h \leqslant 190$
Frequency	32	55	64	49

Calculate an estimate of the mean height.

..... cm [4]

---

04. 0580_s24_qp_22 Q: 3

A delivery driver records the number of pizzas she delivers each month for one year.

48	44	39	28	57	22
36	41	54	57	49	52

(a) Complete the stem-and-leaf diagram.

2	
3	
4	
5	

Key: 4 | 8 represents 48 pizzas

[2]

(b) Find the median.

..... [1]

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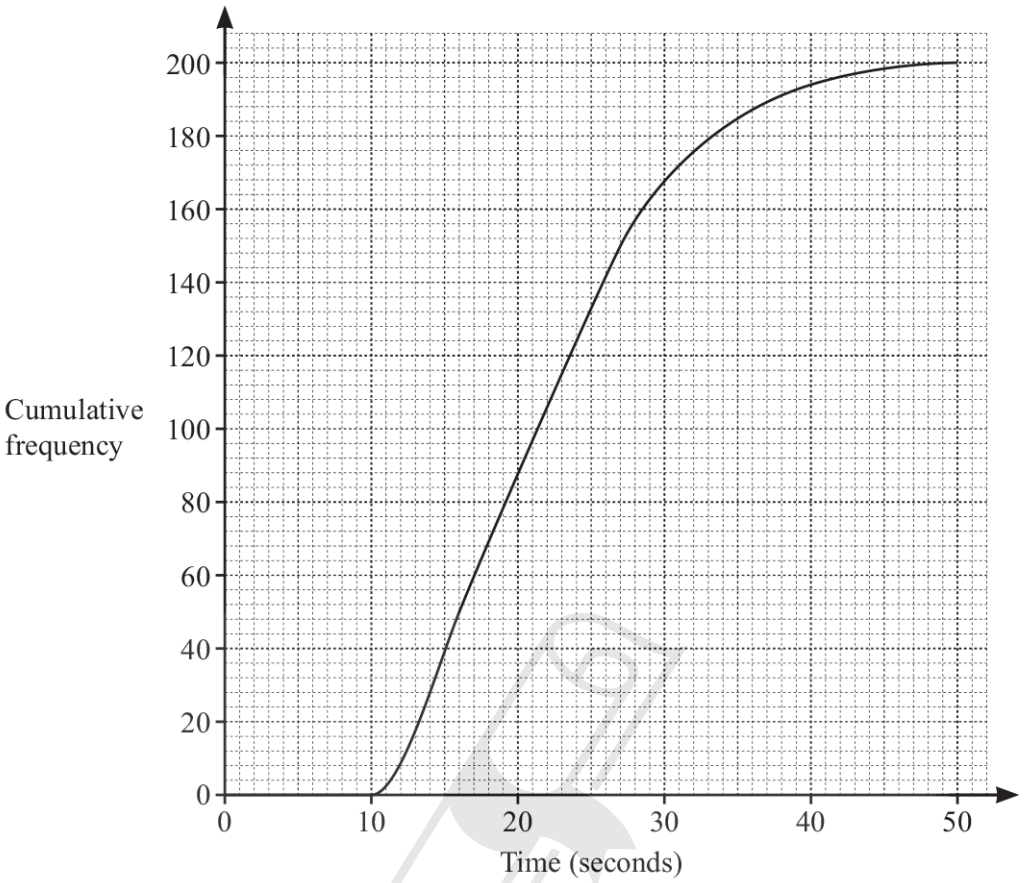
05. 0580_s24_qp_23 Q: 15



The time taken for each of 200 students to complete a calculation is measured.
The cumulative frequency diagram shows the results.

Use the diagram to find an estimate for

(a) the interquartile range

..... s [2]

(b) the number of students taking more than 40 seconds to complete the calculation.

..... [2]

06. 0580_s23_qp_22 Q: 3

On ten days, Stefan records the number of minutes he has to wait for a train.

1 3 12 5 4 23 5 24 11 8

(a) Complete the stem-and-leaf diagram to show this information.

0	1 3
1	
2	

Key: 0 | 1 represents 1 minute

[2]

(b) Find the median.

..... min [1]

07. 0580_w23_qp_21 Q: 2

The stem-and-leaf diagram shows the time, in minutes, it takes each of 15 people to complete a race.

1	6	6	7						
2	1	3	3	4	5	6	7	7	7
3	0	1	1						

Key: 1|6 represents 16 minutes

Find

(a) the mode

..... min [1]

(b) the range

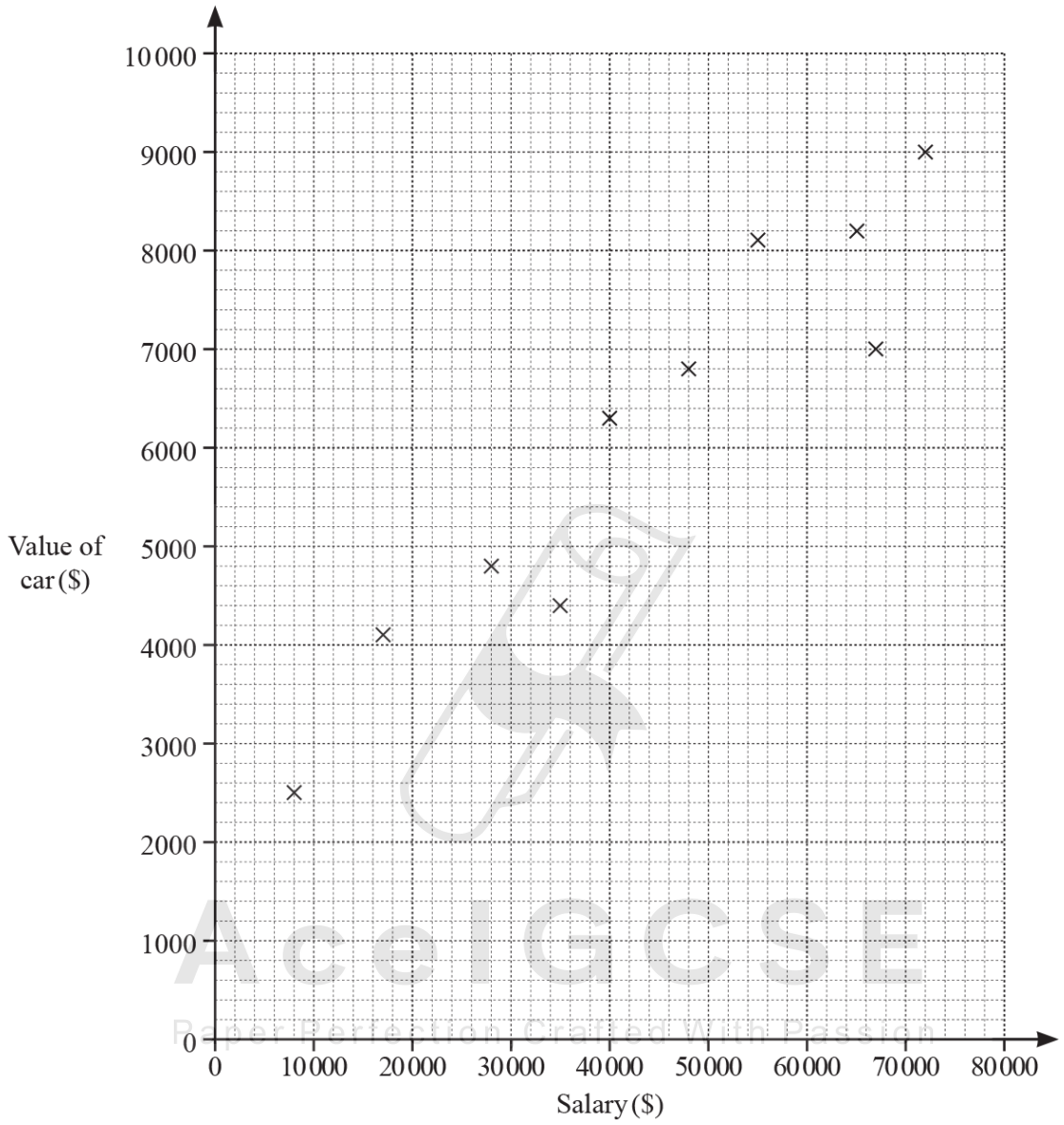
..... min [1]

(c) the median.

..... min [1]

08. 0580_w23_qp_21 Q: 6

For each of 10 people working in an office, the scatter diagram shows their salary and the value of their car.



(a) One of these people has a salary of $28 000.

Find the value of their car.

$ ..... [1]

(b) Another person starts to work in the office.
Their salary is $54 000 and the value of their car is $6100.

Plot this information on the scatter diagram. [1]

(c) What type of correlation is shown in the scatter diagram?

..... [1]

09. 0580_w23_qp_22 Q: 23

Some students record their reaction times.
The table shows the results.

Reaction time (t seconds)	$0 < t \leqslant 6$	$6 < t \leqslant 10$
Frequency	18	16

On a histogram, the height of the block for the $0 < t \leqslant 6$ interval is 7.5 cm.

Calculate the height of the block for the $6 < t \leqslant 10$ interval.

..... cm [2]

10. 0580_w23_qp_23 Q: 3

The stem-and-leaf diagram shows the heights, in centimetres, of some plants.

10	4 8
11	1 3 4 6
12	2 3 6 9
13	2 6 9

Key: 10|4 represents 10.4 cm

(a) Find the median height.

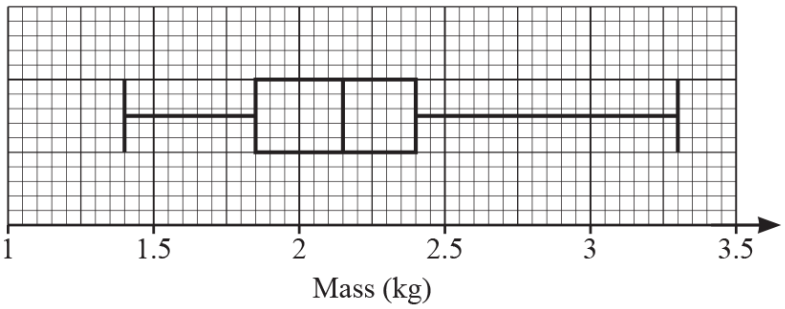
..... cm [1]

(b) Work out the mean height.

..... cm [2]

11. 0580_w23_qp_23 Q: 14

The box-and-whisker plot shows information about the mass, in kg, of some parcels.



(a) Find the mass of the heaviest parcel.

..... kg [1]

(b) Find the interquartile range.

..... kg [1]

---

12. 0580_m22_qp_22 Q: 11

As the temperature increases, people eat more ice cream.

What type of correlation does this statement describe?

..... [1]

---

13. 0580_s22_qp_22 Q: 2

Thibault records the number of cars of each colour in a car park.

Colour	Black	White	Silver	Red
Number of cars	8	5	4	3

He draws a pie chart to show this information.

Calculate the sector angle for the red cars.

..... [2]

---

14. 0580_s22_qp_23 Q: 4

These are the masses, in kg, of 12 parcels.

0.3 0.4 1.2 0.8 1.1 2.1 1.7 1.8 1.2 2.3 0.7 1.1

(a) Complete the stem-and-leaf diagram for the 12 parcels.

0	3 4
1	
2	

Key: 0 | 3 represents 0.3 kg

[2]

(b) Find the median.

..... kg [1]

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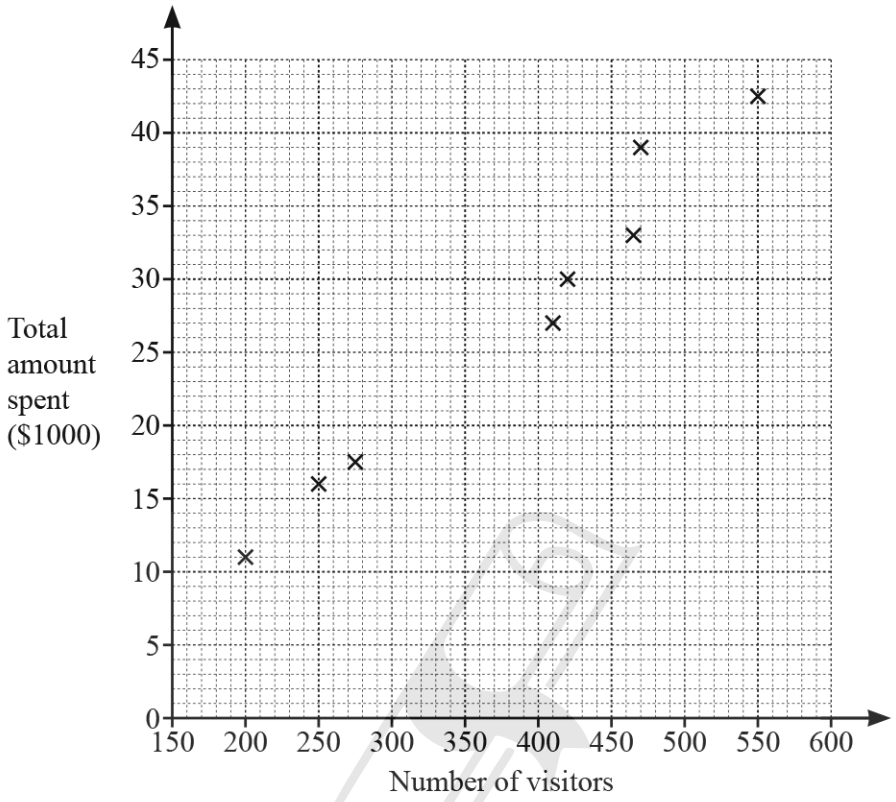
15. 0580_s22_qp_23 Q: 7

The scatter diagram shows the number of visitors and the total amount spent, in thousands of dollars, at a zoo on each of eight days.



(a) On one of the eight days there are 410 visitors.

Find the total amount spent by visitors during this day.

$ ..... [1]

(b) Information for the ninth day is shown in the table.

Number of visitors	175
Total amount spent ($1000)	9

Plot this information on the scatter diagram. [1]

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

(d) On the tenth day the total amount spent is $22 000.

Estimate the number of visitors on this day.

..... [1]

16. 0580_w22_qp_22 Q: 8

Daryl records the number of hours in a week 8 people spend exercising.

5 2 1.5 3 18 4.5 2 4

(a) Find the median.

..... h [2]

(b) Explain why the mean may not be a suitable average to use.

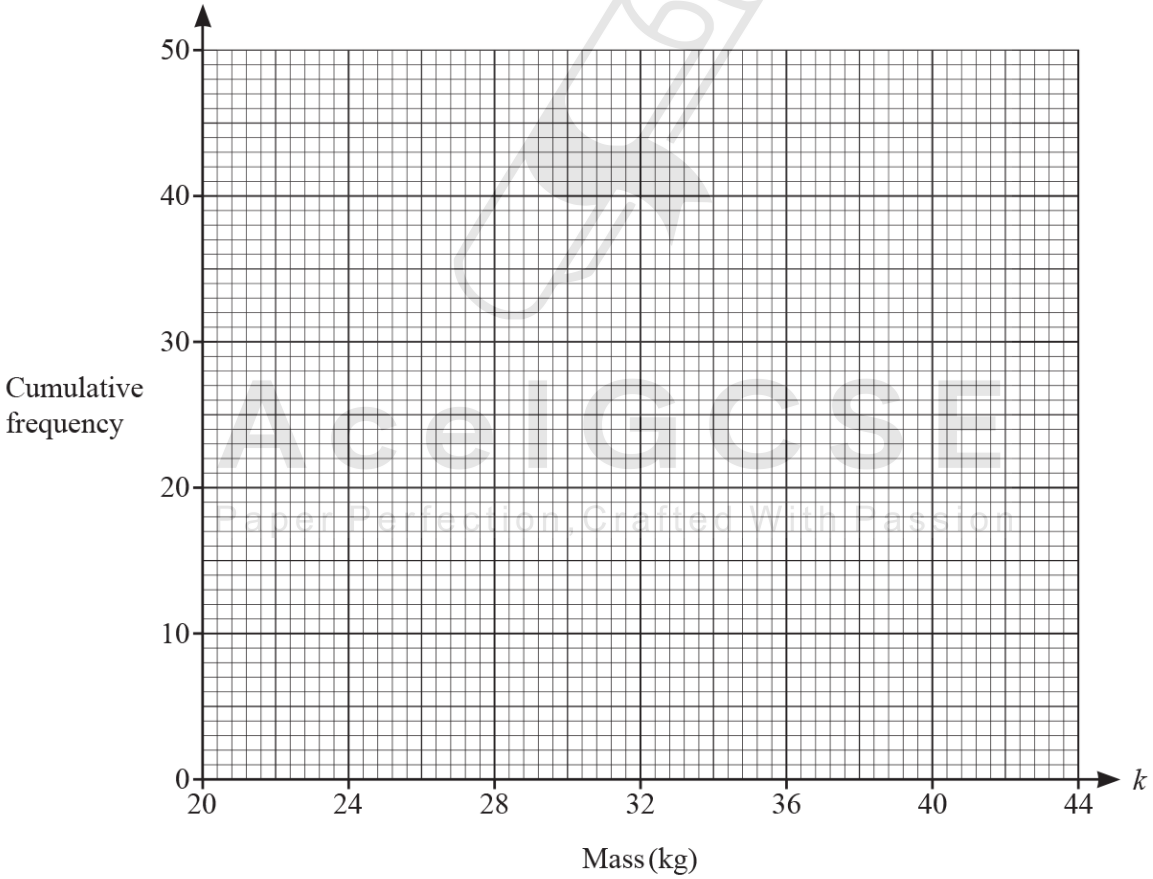
..... [1]

17. 0580_w22_qp_22 Q: 13

The table shows information about the mass of each of 50 children.

Mass (k kg)	Cumulative Frequency
$k \leqslant 20$	0
$k \leqslant 22$	7
$k \leqslant 24$	23
$k \leqslant 28$	35
$k \leqslant 32$	43
$k \leqslant 36$	47
$k \leqslant 42$	50

(a) Draw a cumulative frequency diagram to show this information.



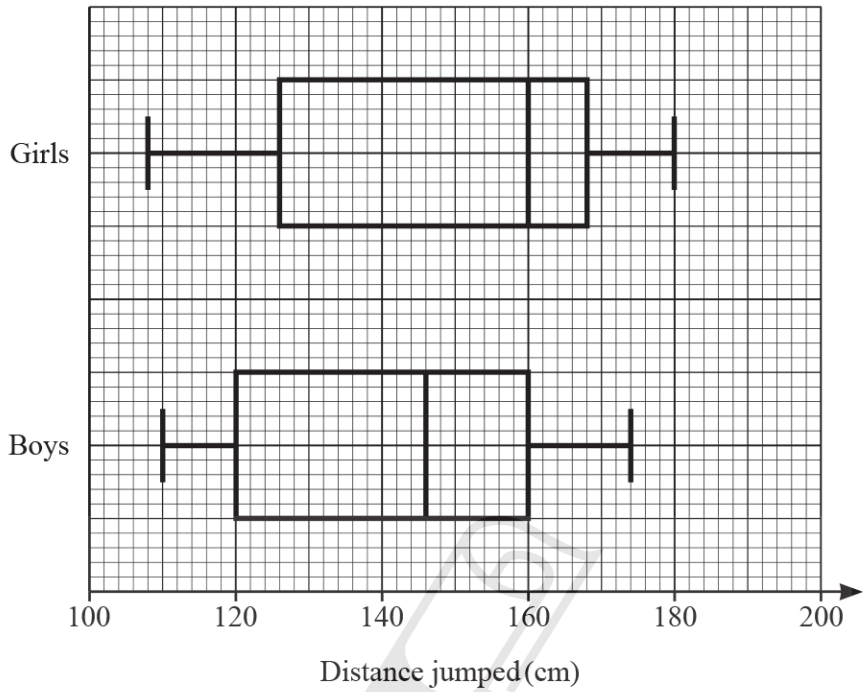
[3]

(b) Use your graph to find an estimate of the 90th percentile.

..... [1]

18. 0580_w22_qp_22 Q: 14

136 girls and 144 boys each measure the distance they jump in centimetres.
The box-and-whisker plots show the distributions of these distances.



Each child who jumps a distance greater than 160 cm gets a certificate.

Work out an estimate of the total number of children who get a certificate.

..... [2]

19. 0580_w22_qp_23 Q: 4

The mean mass of four men in a rowing team is 97.5 kg.
The modal mass is 101 kg.
The range of the masses is 8 kg.

Find the mass of each of the four men.

..... kg , ... kg , ... kg, ... kg [3]

---

20. 0580_m21_qp_22 Q: 3

The number of passengers on a bus is recorded each day for 14 days.

15	18	22	17	35	38	24
19	19	24	25	31	36	29

(a) Complete the stem-and-leaf diagram.

1	
2	
3	

Key: 1 | 5 represents 15 passengers

[2]

(b) Find the median.

..... [1]

---

21. 0580_m21_qp_22 Q: 5

The number of bowls of hot soup sold decreases when the temperature rises.

What type of correlation does this statement describe?

..... [1]

---

22. 0580_m21_qp_22 Q: 17

Some students were asked how many books they each had in their school bags.
The table shows some of this information.

Number of books	5	6	7	8	9	10
Frequency	4	5	x	11	7	5

The mean number of books is 7.6 .

Calculate the value of x.

$x =$ ..... [3]

---

23. 0580_s21_qp_21 Q: 3

The stem-and-leaf diagram shows the number of hours that each of 16 students studied last week.

1	2	5	6	8	
2	0	1	1	7	9
3	2	3	4	5	
4	4	5	7		

Key: 1 | 2 represents 12 hours

Find

(a) the median,

..... h [1]

(b) the mode,

..... h [1]

(c) the range.

..... h [1]

24. 0580_s21_qp_22 Q: 3

Emma has 15 mathematics questions to complete.
The stem-and-leaf diagram shows the time, in minutes, it takes her to complete each question.

0	3	5	6	7	7	8	8
1	1	2	2	3	6	6	6
2	0						

Key: 2 | 0 = 20 minutes

Complete the table.

Mode	..... min
Median	..... min
Range	..... min

[3]

---

25. 0580_s21_qp_22 Q: 4

Write down an expression for the range of k consecutive integers.

..... [1]

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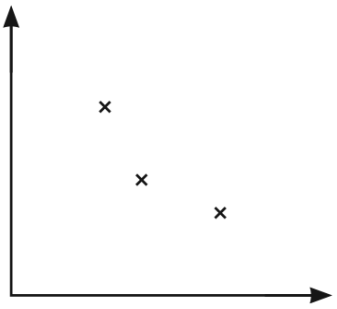
26. 0580_s21_qp_22 Q: 5

(a) Henrik draws this scatter diagram.

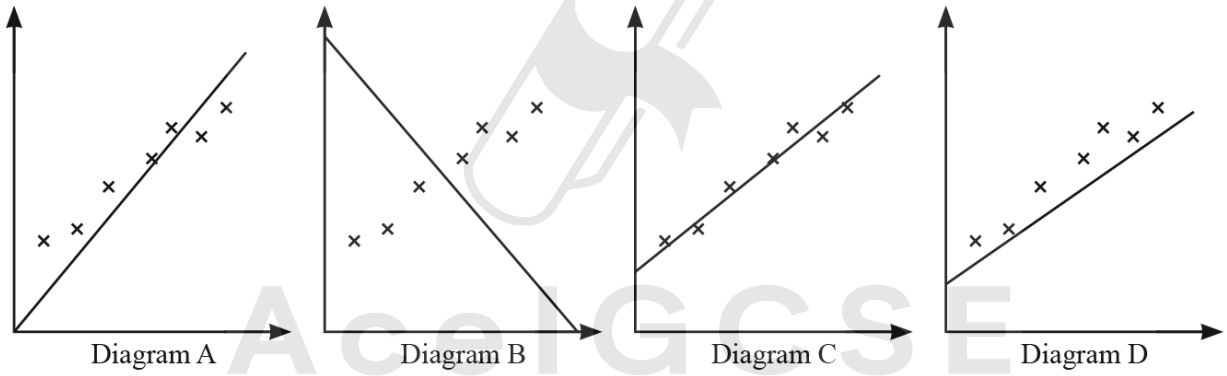


Put a ring around the **one** correct statement about this scatter diagram.

It shows no correlation.	It is not possible to tell if there is correlation as there are not enough points.	It shows negative correlation.	It shows positive correlation.

[1]

(b) Each of the four scatter diagrams shows the same set of data.
A line has been drawn on each diagram.



Complete the statement.

The line in Diagram ..... is the most appropriate line of best fit. [1]

27. 0580_w21_qp_21 Q: 4

The number of items that each of 22 people buy in a supermarket is shown in the stem-and-leaf diagram.

1	1 3 6 6
2	0 2 2 2 4 8 9
3	1 1 5 8 9 9
4	2 4 6 7 8

Key: 1 | 1 represents 11 items

(a) Find the mode.

..... [1]

(b) Find the median.

..... [1]

28. 0580_w21_qp_21 Q: 5

The table shows the relative frequency of the games won by a football team.

Result of game	won	lost	drawn
Relative frequency	0.1		

The number of games lost is twice the number of games drawn.

Complete the table.

[3]

---

29. 0580_w21_qp_22 Q: 2

The stem-and-leaf diagram shows the age, in years, of each of 15 women.

3	1	5	8	9				
4	1	1	2	3	5	6	9	
5	0	2	3	8				

Key: 3 | 1 represents 31 years

Complete these statements.

The modal age is .....

The median age is .....

The percentage of women that are older than 51 years is ..... %. [3]

---

30. 0580_m20_QP_22 Q: 2

The number of people swimming in a pool is recorded each day for 12 days.

24	28	13	38	15	26
45	21	48	36	18	38

(a) Complete the stem-and-leaf diagram.

1	
2	
3	
4	

Key: 1|3 represents 13 swimmers

[2]

(b) Find the median number of swimmers.

..... [1]

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31. 0580_m20_QP_22 Q: 6

The table shows the marks scored by 40 students in a test.

Mark	5	6	7	8	9	10
Frequency	8	5	11	7	5	4

Calculate the mean mark.

..... [3]

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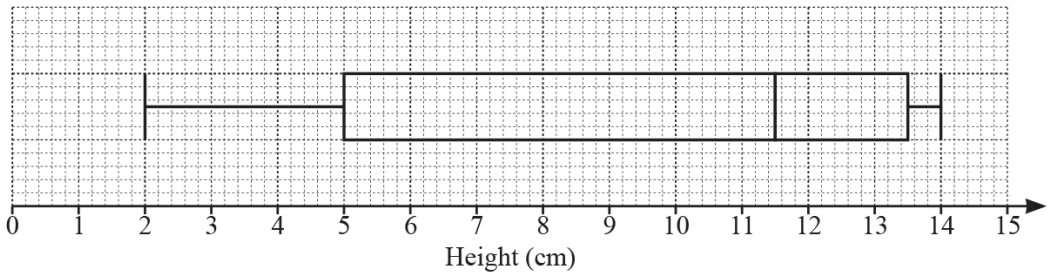
32. 0580_m20_QP_22 Q: 14

The box-and-whisker plot gives information about the heights, in centimetres, of some plants.



(a) Write down the median.

..... cm [1]

(b) Find

(i) the range,

..... cm [1]

(ii) the interquartile range.

..... cm [1]

---

33. 0580_P20_QP_20 Q: 6

The number of cars parked in a car park at 9 am is recorded for 10 days.

124 130 129 116 132 120 127 107 118 114

Complete the stem-and-leaf diagram.

10 .....

11 .....

12 .....

13 .....

Key: 12|3 represents 123 cars

[2]

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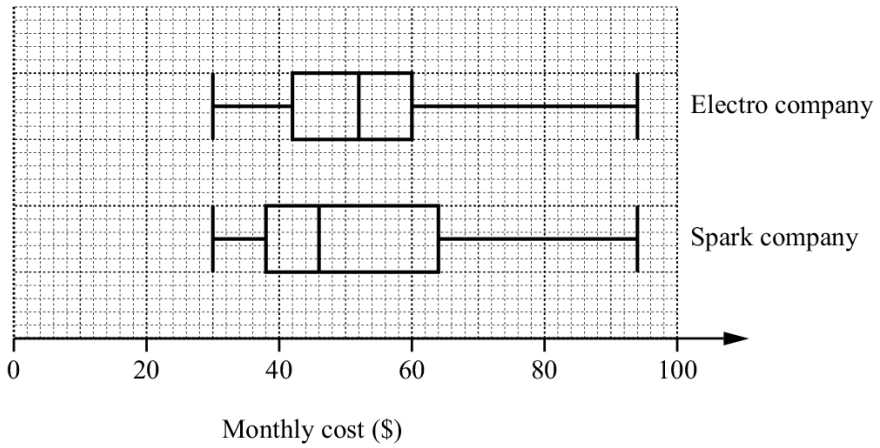
34. 0580_P20_QP_20 Q: 24

These box-and-whisker plots show the monthly electricity costs for 100 different households who use Electro company or Spark company.



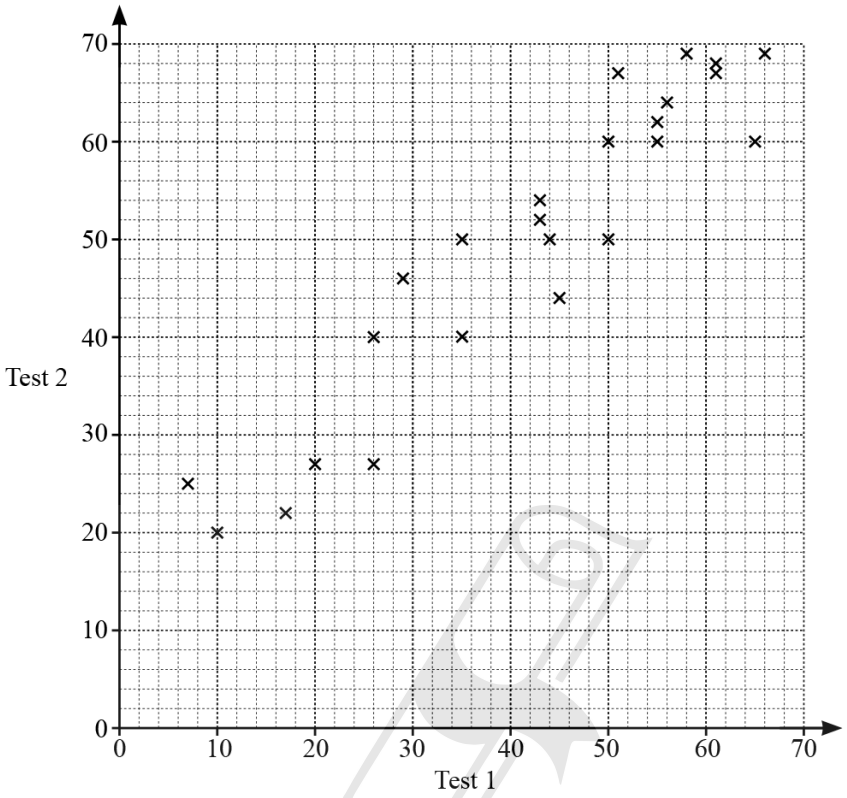
Tom says that the monthly costs with Electro company are lower and vary less than with Spark company.

Is Tom correct?
Justify your answer with reference to the box-and-whisker plots.

[4]

35. 0580_s20_QP_21 Q: 3

Mrs Salaman gives her class two mathematics tests.
The scatter diagram shows information about the marks each student scored.



(a) Write down the highest mark scored on test 1.

..... [1]

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

..... [1]

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

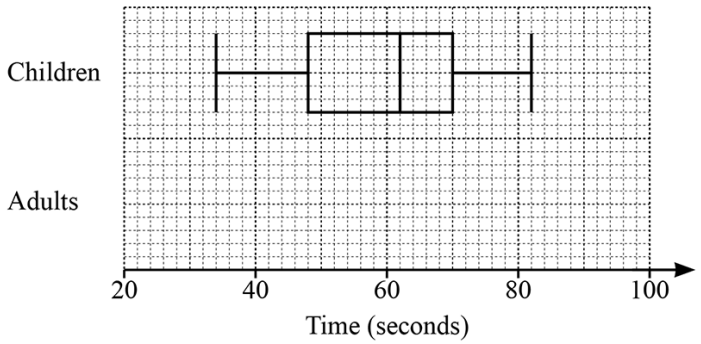
(d) Hamish scored a mark of 40 on test 1.
He was absent for test 2.

Use your line of best fit to find an estimate for his mark on test 2.

..... [1]

36. 0580_s20_QP_21 Q: 12

Gemma records the times, in seconds, taken for a group of children and a group of adults to complete a puzzle.
The box-and-whisker plot shows information about the times taken for the children to complete the puzzle.



(a) Find the interquartile range of the times taken for the children to complete the puzzle.

..... seconds [2]

(b) The table shows some information about the times, in seconds, taken for the adults to complete the puzzle.

Minimum	Lower quartile	Median	Upper quartile	Maximum
28	42	58	70	75

On the grid above, draw the box-and-whisker plot for the adults. [2]

37. 0580_s20_QP_23 Q: 15

The table shows the amount of money, $\$x$, given to a charity by each of 60 people.

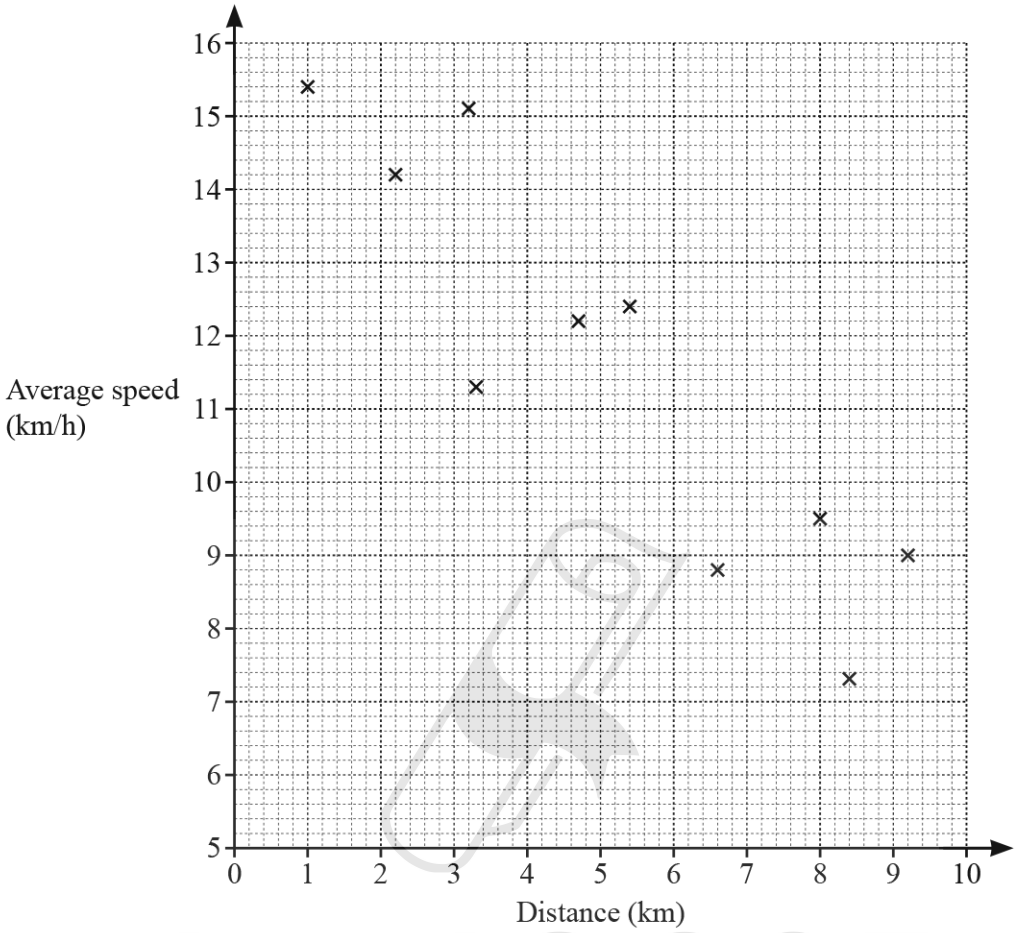
Amount ($\$x$)	$0 < x \leqslant 20$	$20 < x \leqslant 25$	$25 < x \leqslant 35$	$35 < x \leqslant 50$	$50 < x \leqslant 100$
Frequency	21	16	6	10	7

Calculate an estimate of the mean.

$ ..... [4]

38. 0580_w20_qp_21 Q: 4

Aisha records the distance she runs and her average speed.
The results are shown in the scatter diagram.



(a) The table shows the results of four more runs.

Distance (km)	4.2	5.7	7.1	8.8
Average speed (km/h)	13.4	11.8	9.8	8.3

On the scatter diagram, plot these points. [2]

(b) What type of correlation is shown in the scatter diagram?

..... [1]

(c) On the scatter diagram, draw a line of best fit. [1]

(d) Use your line of best fit to estimate her average speed when she runs a distance of 6 km.

..... km/h [1]

39. 0580_w20_qp_23 Q: 22

The table shows information about the times, t seconds, taken by each of 100 students to solve a puzzle.

Time (t seconds)	$0 < t \leqslant 10$	$10 < t \leqslant 15$	$15 < t \leqslant 20$	$20 < t \leqslant 40$	$40 < t \leqslant 75$
Frequency	9	18	22	30	21

(a) Calculate an estimate of the mean time.

..... s [4]

(b) Emmanuel draws a histogram to show this information.
The table shows the heights, in cm, of some of the bars for this histogram.

Complete the table.

Time (t seconds)	$0 < t \leqslant 10$	$10 < t \leqslant 15$	$15 < t \leqslant 20$	$20 < t \leqslant 40$	$40 < t \leqslant 75$
Height of bar (cm)	3.6	14.4	17.6		

[3]

40. 0580_s19_QP_22 Q: 18

The table shows the number of people in different age groups at a cinema.

Age (y years)	$15 < y \leqslant 25$	$25 < y \leqslant 30$	$30 < y \leqslant 50$	$50 < y \leqslant 80$
Number of people	35	32	44	12

Dexter draws a histogram to show this information.
The height of the bar he draws for the group $15 < y \leqslant 25$ is 7 cm.

Calculate the height of each of the remaining bars.

$25 < y \leqslant 30$ ..... cm

$30 < y \leqslant 50$ ..... cm

$50 < y \leqslant 80$ ..... cm [3]

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41. 0580_s19_QP_23 Q: 4

The table shows the different methods of travel for 20 people going to work.

Method of travel	Frequency
Car	10
Walk	5
Bike	3
Bus	2

Which type of average, mean, median or mode, can be used for this information?

..... [1]

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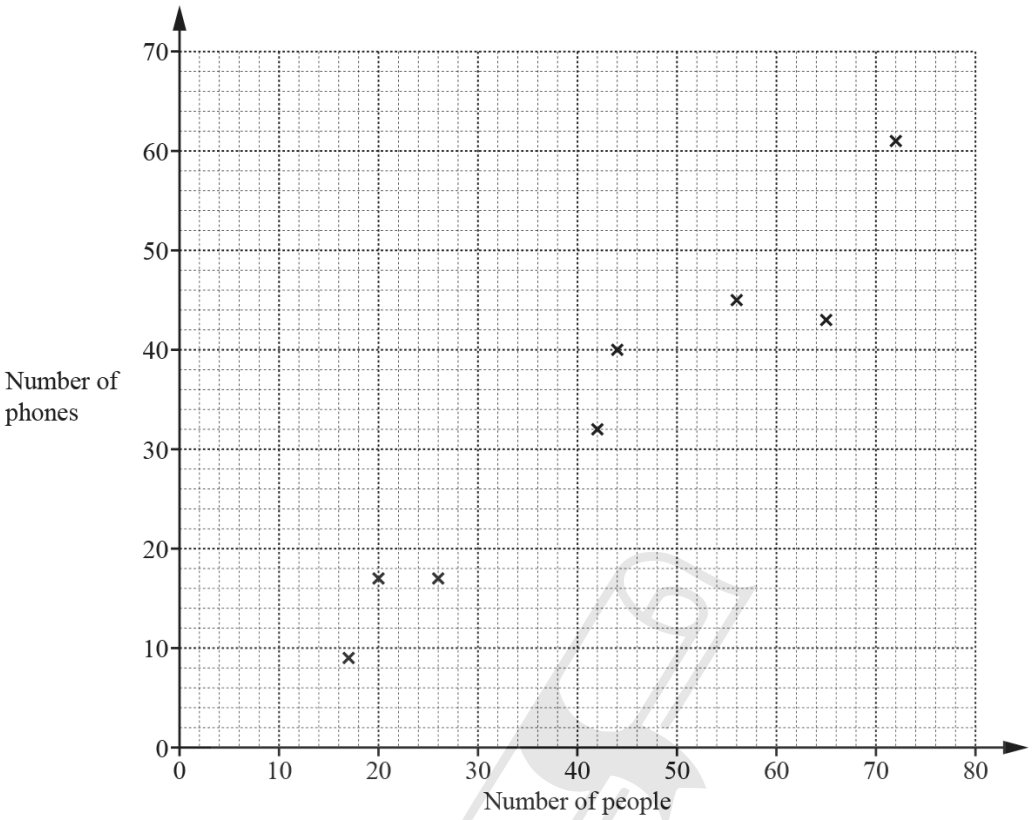
42. 0580_s19_QP_23 Q: 8

The scatter diagram shows the number of people and the number of phones in each of 8 buildings.



(a) One of the buildings contains 42 people.

Write down the number of phones in this building.

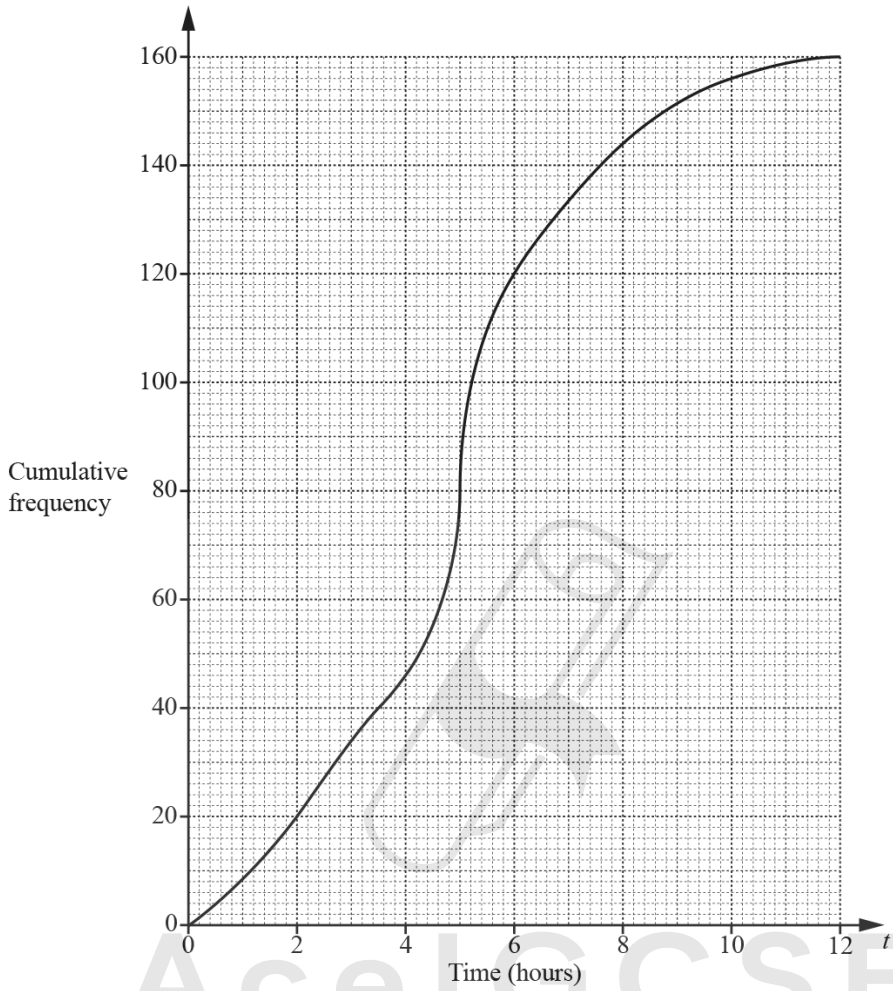
..... [1]

(b) What type of correlation is shown in the scatter diagram?

..... [1]

43. 0580_s19_QP_23 Q: 23

160 students record the amount of time, t hours, they each spend playing computer games in a week.
This information is shown in the cumulative frequency diagram.



(a) Use the diagram to find an estimate of

(i) the median,

..... hours [1]

(ii) the interquartile range.

..... hours [2]

(b) Use the diagram to complete this frequency table.

Time (t hours)	$0 < t \leqslant 2$	$2 < t \leqslant 4$	$4 < t \leqslant 6$	$6 < t \leqslant 8$	$8 < t \leqslant 10$	$10 < t \leqslant 12$
Frequency	20			24	12	4

[2]

44. 0580_w19_QP_22 Q: 5

The mass, correct to the nearest kilogram, of each of 11 parcels is shown below.

24 23 23 26 25 27 18 96 16 17 32

(a) Find the mode.

..... kg [1]

(b) Give a reason why the mean would be an unsuitable average to use.

..... [1]

---

45. 0580_w19_QP_22 Q: 6

The table shows how children in Ivan's class travel to school.

Travel to school	Number of children
Walk	12
Car	7
Bicycle	9
Bus	4

Ivan wants to draw a pie chart to show this information.

Find the sector angle for children who walk to school.

..... [2]

---

46. 0580_w19_QP_23 Q: 10

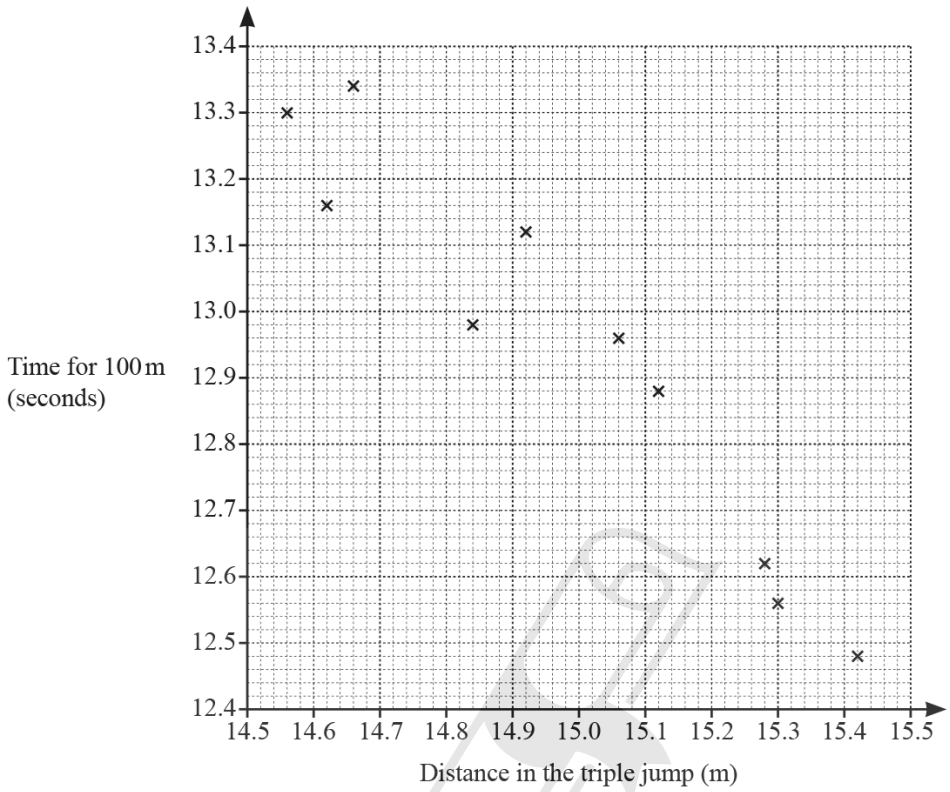
$5n$ is the mean of the three numbers 391, n and $n - 1$.

Find the value of n.

$n =$ ..... [3]

47. 0580_w19_QP_23 Q: 16

Ten athletes compete in both the 100 metre race and the triple jump.
Their results are shown in the scatter diagram.



(a) One of these athletes jumps 15.12 m in the triple jump.

Write down his time for the 100 metre race.

..... s [1]

(b) The values for two other athletes are shown in the table.

Distance in the triple jump (m)	14.74	15.2
Time for 100 m (seconds)	13.2	12.76

On the scatter diagram, plot these points. [1]

(c) On the scatter diagram, draw a line of best fit. [1]

(d) What type of correlation is shown in the scatter diagram?

..... [1]

48. 0580_w19_QP_23 Q: 23

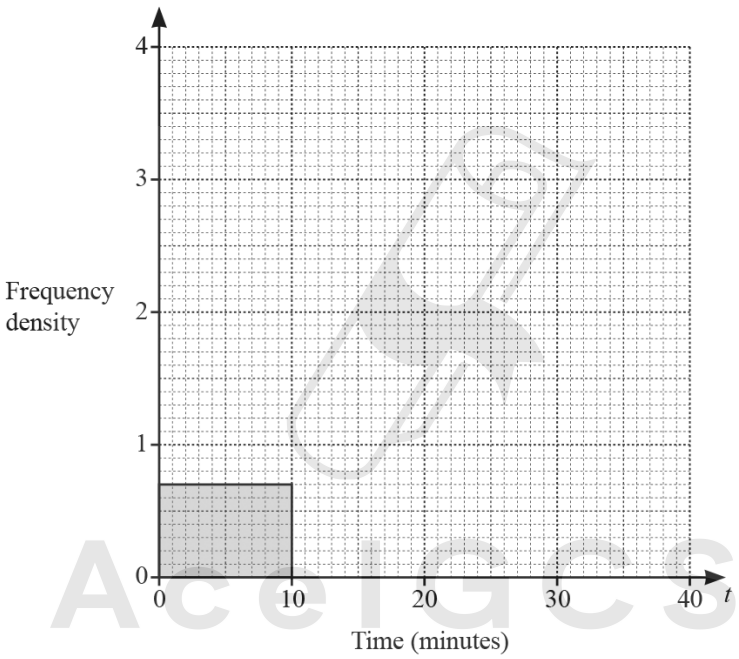
The time, t minutes, it takes each of 50 students to travel to school is recorded.
The table shows the results.

Time (t minutes)	$0 < t \leqslant 10$	$10 < t \leqslant 15$	$15 < t \leqslant 20$	$20 < t \leqslant 40$
Frequency	7	19	16	8

(a) Write down the modal class.

..... $< t \leqslant$ ..... min [1]

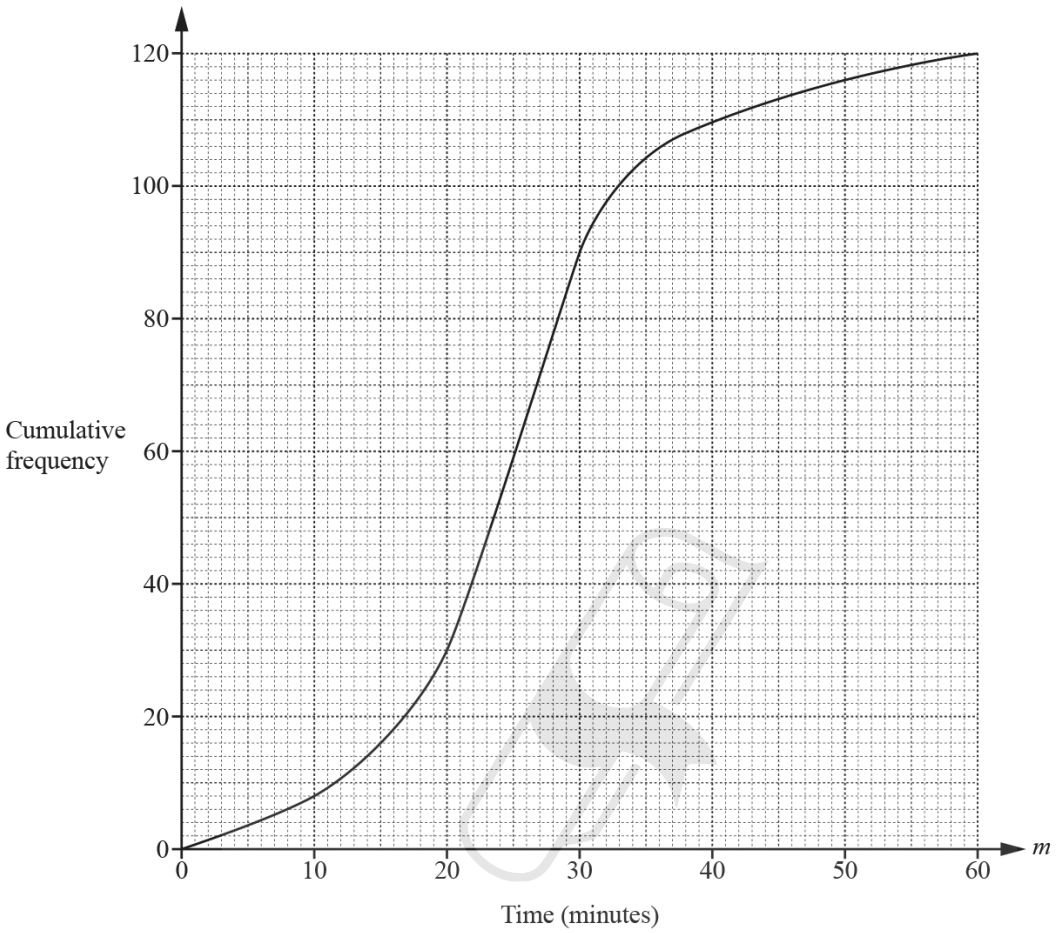
(b) On the grid, complete the histogram to show the information in the table.



[3]

49. 0580_s18_QP_21 Q: 18

The cumulative frequency diagram shows information about the time, m minutes, taken by 120 students to complete some homework.



Use the cumulative frequency diagram to find an estimate of

(a) the interquartile range,

.....min [2]

(b) the number of students who took more than 50 minutes to complete the homework.

..... [2]

50. 0580_s18_QP_21 Q: 23

40 people were asked how many times they visited the cinema in one month.
The table shows the results.

Number of cinema visits	0	1	2	3	4	5	6	7
Frequency	5	5	6	6	7	3	6	2

(a) **(i)** Find the mode.

..... [1]

(ii) Calculate the mean.

..... [3]

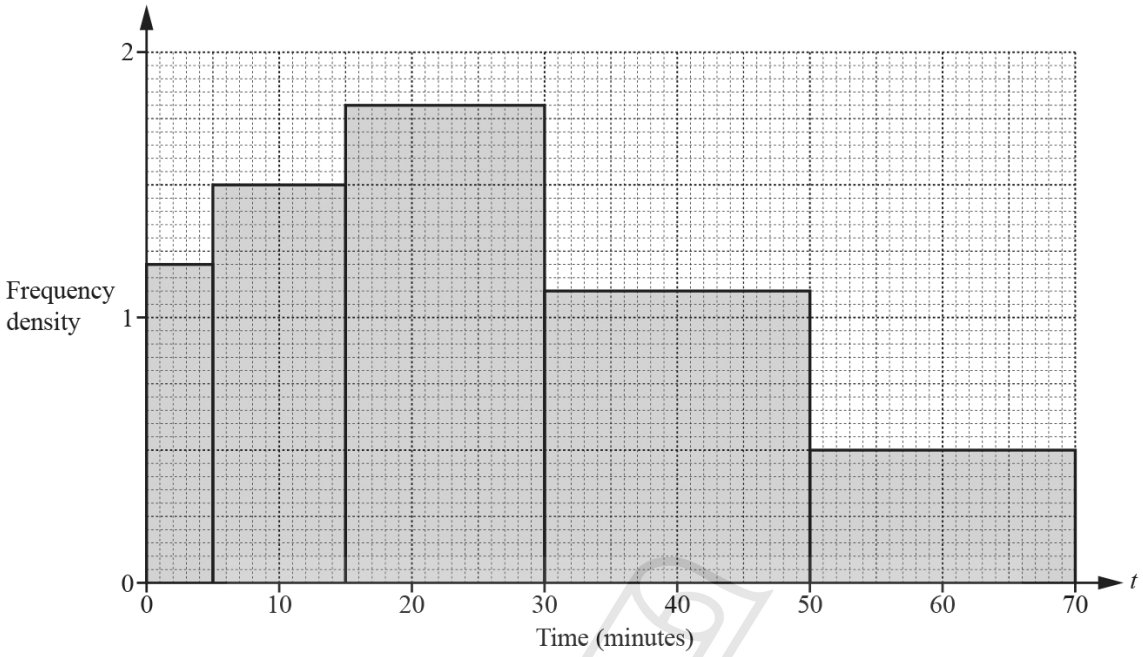
(b) Omar wants to show the information from the table in a pie chart.

Calculate the sector angle for the people who visited the cinema 5 times.

..... [2]

51. 0580_s18_QP_22 Q: 13

The histogram shows information about the time, t minutes, spent in a shop by each of 80 people.



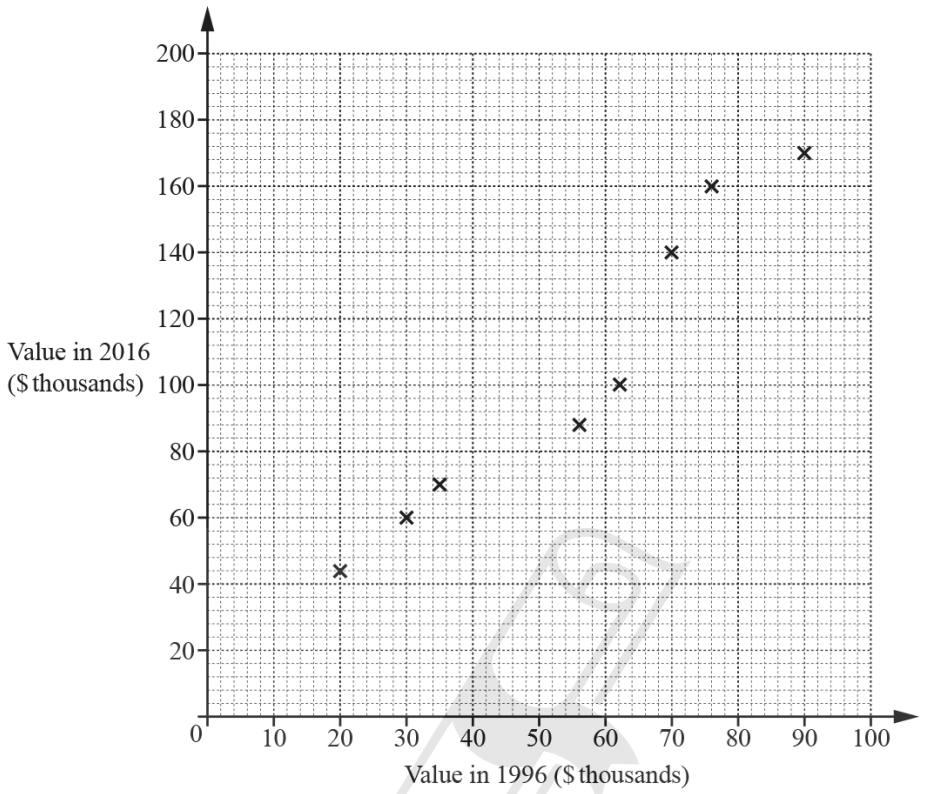
Complete the frequency table.

Time (t minutes)	$0 < t \leqslant 5$	$5 < t \leqslant 15$	$15 < t \leqslant 30$	$30 < t \leqslant 50$	$50 < t \leqslant 70$
Number of people	6		27		10

[2]

52. 0580_s18_QP_22 Q: 21

The scatter diagram shows the value, in thousands of dollars, of eight houses in 1996 and the value of the same houses in 2016.



(a) One of these eight houses had a value of $70 000 in 1996.

Write down the value of this house in 2016.

$ ..... [1]

(b) The values of two more houses are shown in the table.

Value in 1996 ($ thousands)	40	80
Value in 2016 ($ thousands)	80	150

On the scatter diagram, plot these values. [1]

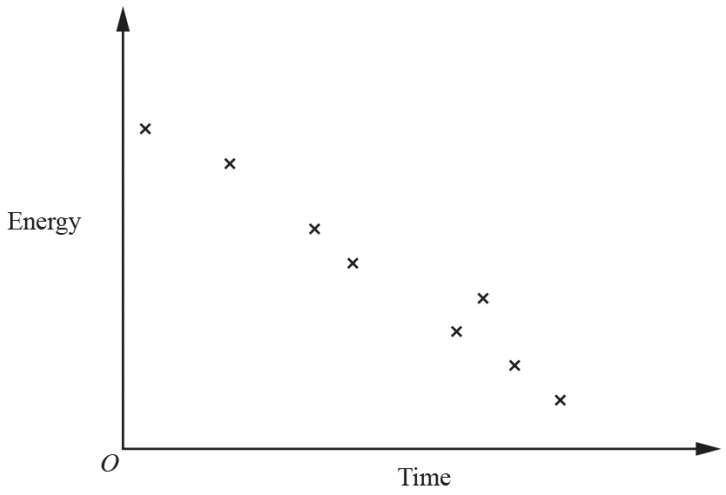
(c) On the scatter diagram, draw a line of best fit. [1]

(d) Another house had a value of $50 000 in 1996.

Find an estimate of the value of this house in 2016.

$ ..... [1]

53. 0580_w18_QP_21 Q: 3



What type of correlation does the scatter diagram show?

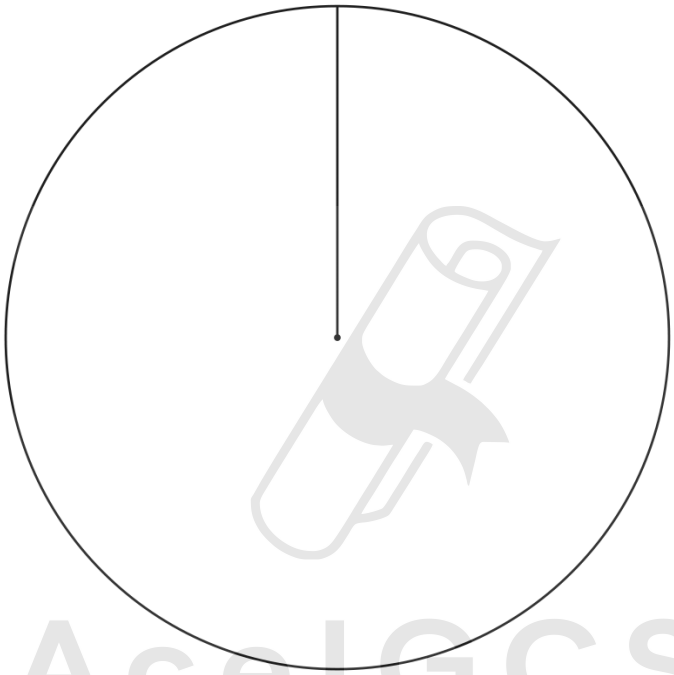
.....[1]

54. 0580_w18_QP_22 Q: 18

120 students choose what they want to do when they leave school.
Their choices are shown in the table.

Choice	Number of students
University	57
Training	45
Work	18

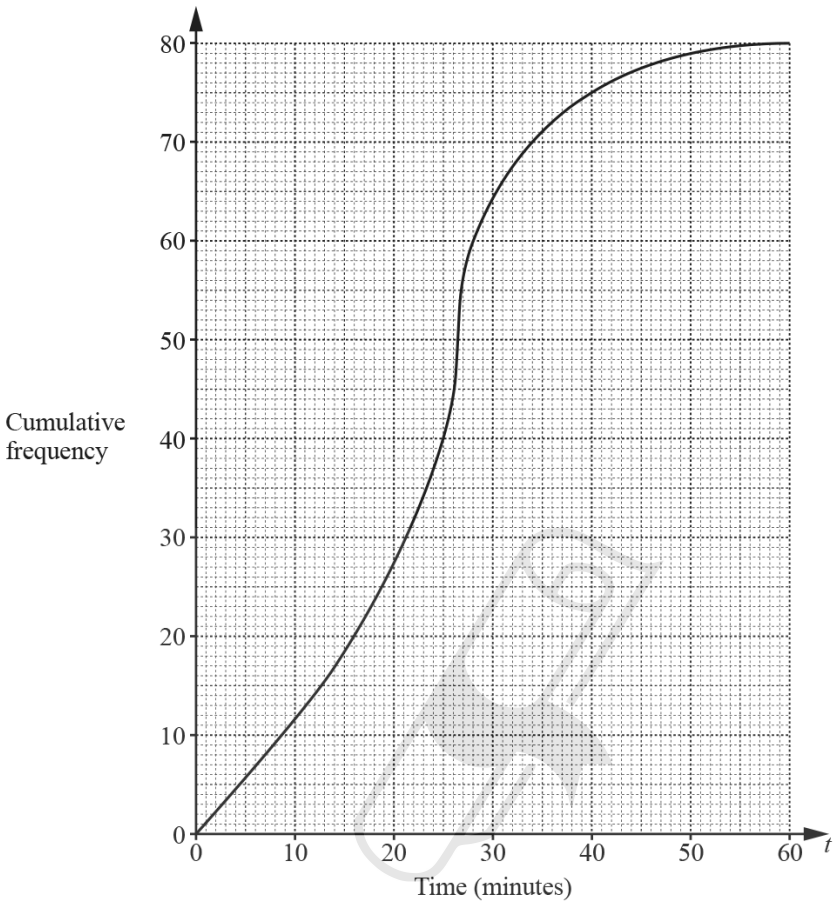
Complete the pie chart to show this information.
Label each sector clearly.



[4]

55. 0580_w18_QP_22 Q: 24

The time, t minutes, 80 students each spend completing their homework is recorded.
The cumulative frequency diagram shows the results.



Use the cumulative frequency diagram to find an estimate of

(a) the median,

..... min [1]

(b) the interquartile range,

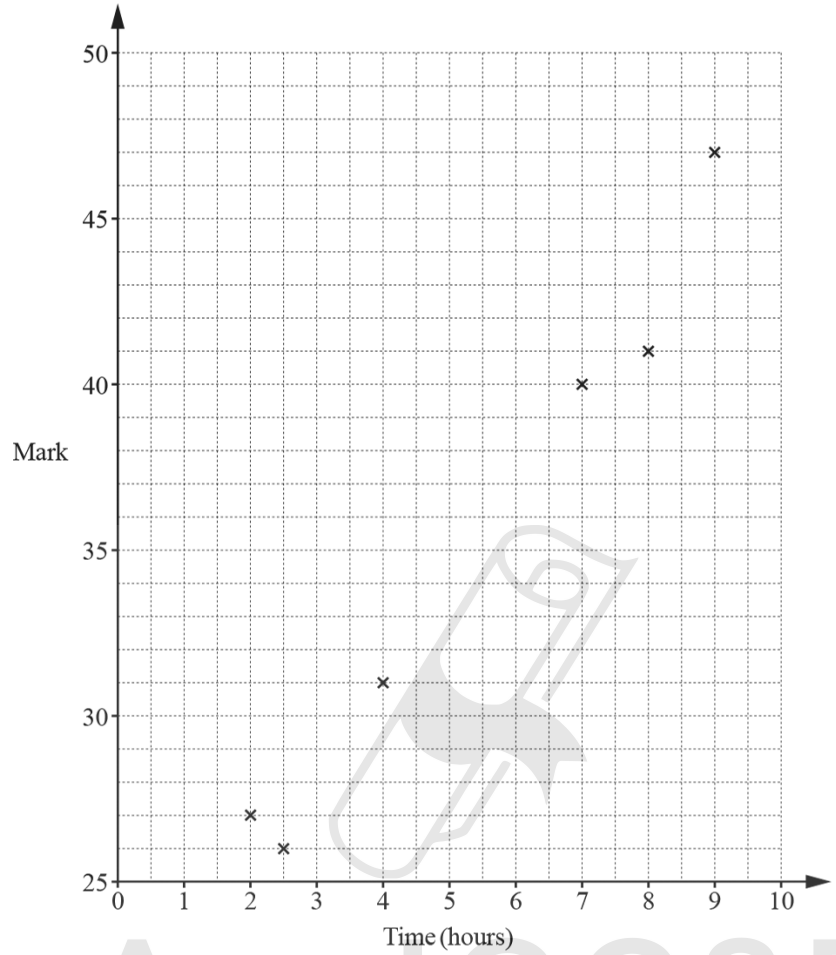
..... min [2]

(c) the number of students who spend more than 40 minutes completing their homework.

..... [2]

56. 0580_s17_QP_21 Q: 16

Six students revise for a test.
The scatter diagram shows the time, in hours, each student spent revising and their mark in the test.



(a) The data for two more students is shown in the table.

Time (hours)	4.5	6.5
Mark	33	35

Plot these two points on the scatter diagram. [1]

(b) What type of correlation is shown on the scatter diagram?

..... [1]

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

(d) Another student spent 5.5 hours revising.

Estimate a mark for this student.

..... [1]

57. 0580_w17_QP_21 Q: 4

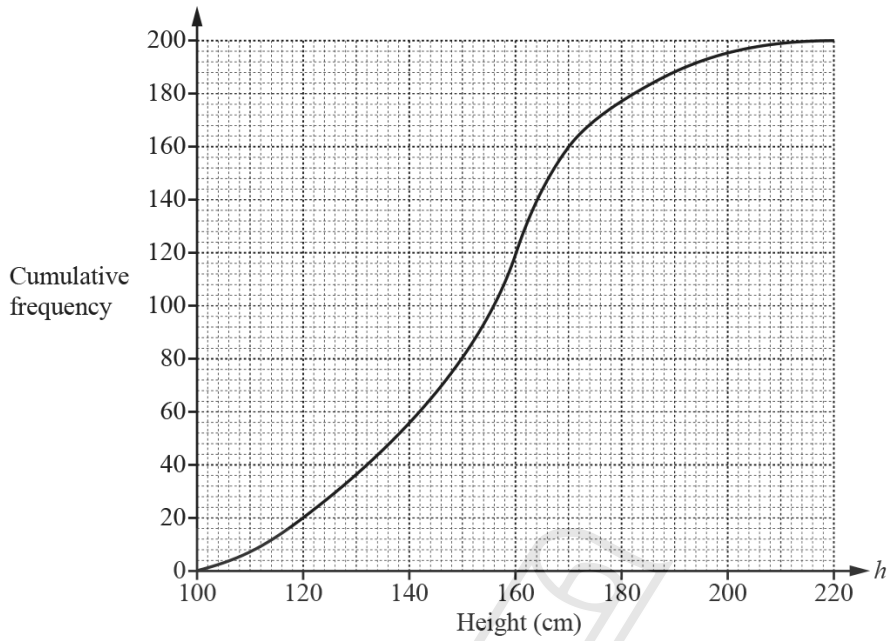
Amber's mean mark on five tests is 80.
Her marks on four of these tests are 68, 81, 74 and 89.

Work out her mark on the fifth test.

..... [2]

58. 0580_w17_QP_21 Q: 22

Simon records the heights, h cm, of 200 sunflowers in his garden.
The cumulative frequency diagram shows this information.



(a) Find the number of these sunflowers that have a height of more than 160 cm.

..... [2]

(b) Sue records the heights, h cm, of 200 sunflowers in her garden.
The cumulative frequency table shows this information.

Height (h cm)	Cumulative frequency
$h \leqslant 100$	0
$h \leqslant 110$	20
$h \leqslant 120$	48
$h \leqslant 130$	100
$h \leqslant 140$	140
$h \leqslant 150$	172
$h \leqslant 160$	188
$h \leqslant 170$	200

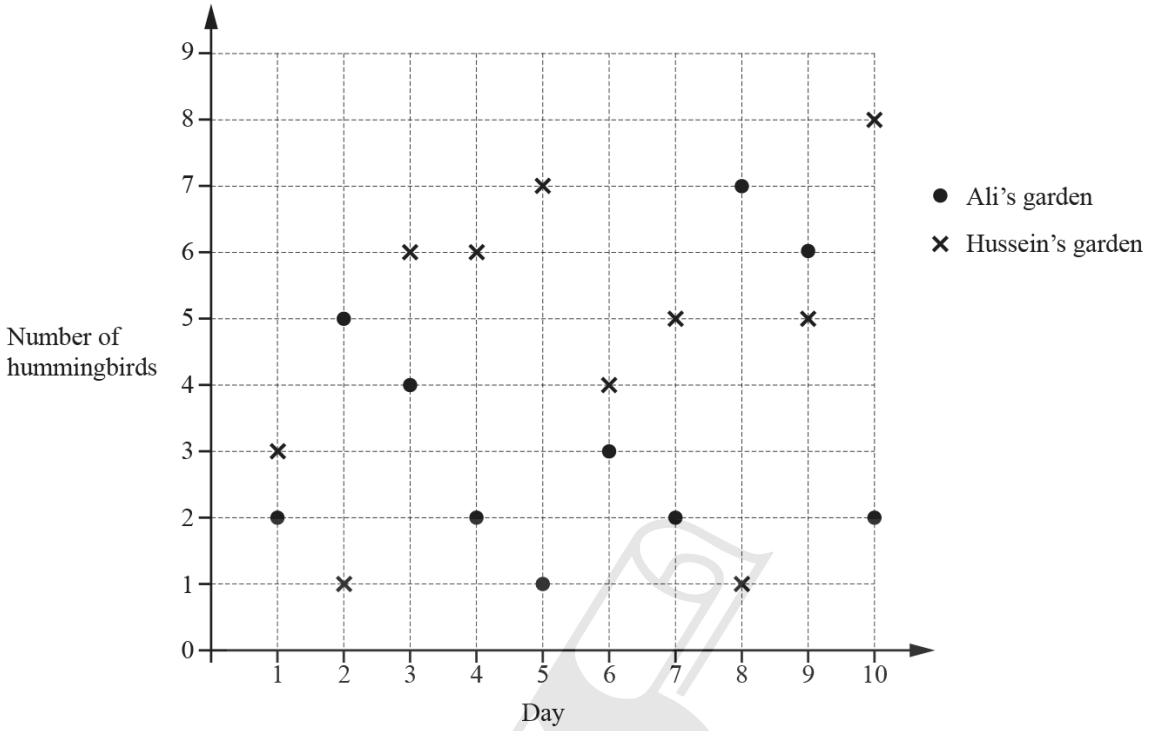
On the grid above, draw another cumulative frequency diagram to show this information. [3]

(c) Work out the difference between the median heights of Simon's sunflowers and Sue's sunflowers.

..... cm [2]

59. 0580_w17_QP_23 Q: 21

The diagram shows the numbers of hummingbirds seen by Ali and Hussein in their gardens each day for 10 days.



(a) Calculate the mean number of hummingbirds seen in Ali's garden each day.

..... [3]

(b) Work out the median number of hummingbirds seen in Hussein's garden each day.

..... [2]

(c) On one of these days there were 4 times as many hummingbirds seen in Hussein's garden as in Ali's garden.

Which day was this?

Day ..... [1]

60. 0580_m16_QP_22 Q: 16

Raj measures the height, h cm, of 70 plants.
The table shows the information.

Height (h cm)	$10 < h \leqslant 20$	$20 < h \leqslant 40$	$40 < h \leqslant 50$	$50 < h \leqslant 60$	$60 < h \leqslant 90$
Frequency	7	15	27	13	8

Calculate an estimate of the mean height of the plants.

..... cm [4]

---

61. 0580_s16_QP_22 Q: 11

Shahruk plays four games of golf.
His four scores have a mean of 75, a mode of 78 and a median of 77.

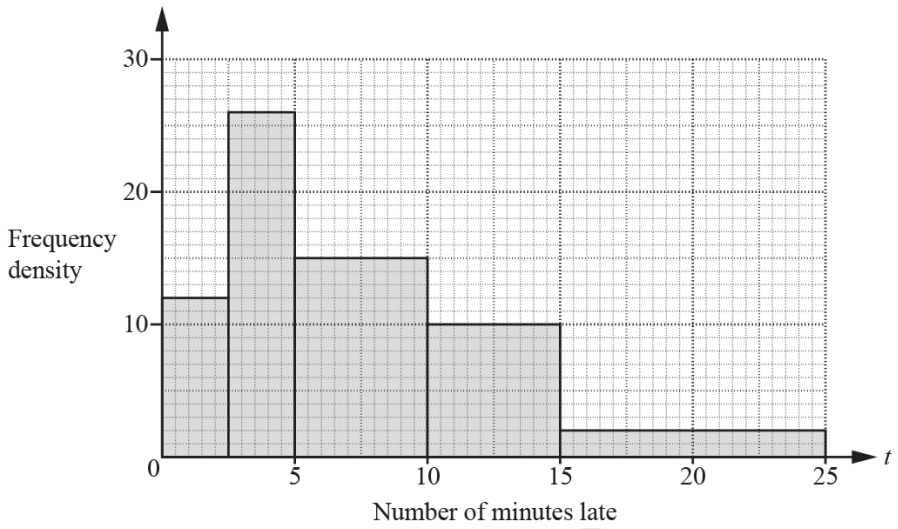
Work out his four scores.

.... [3]

---

62. 0580_s16_QP_22 Q: 20

Deborah records the number of minutes late, t, for trains arriving at a station.
The histogram shows this information.



(a) Find the number of trains that Deborah recorded.

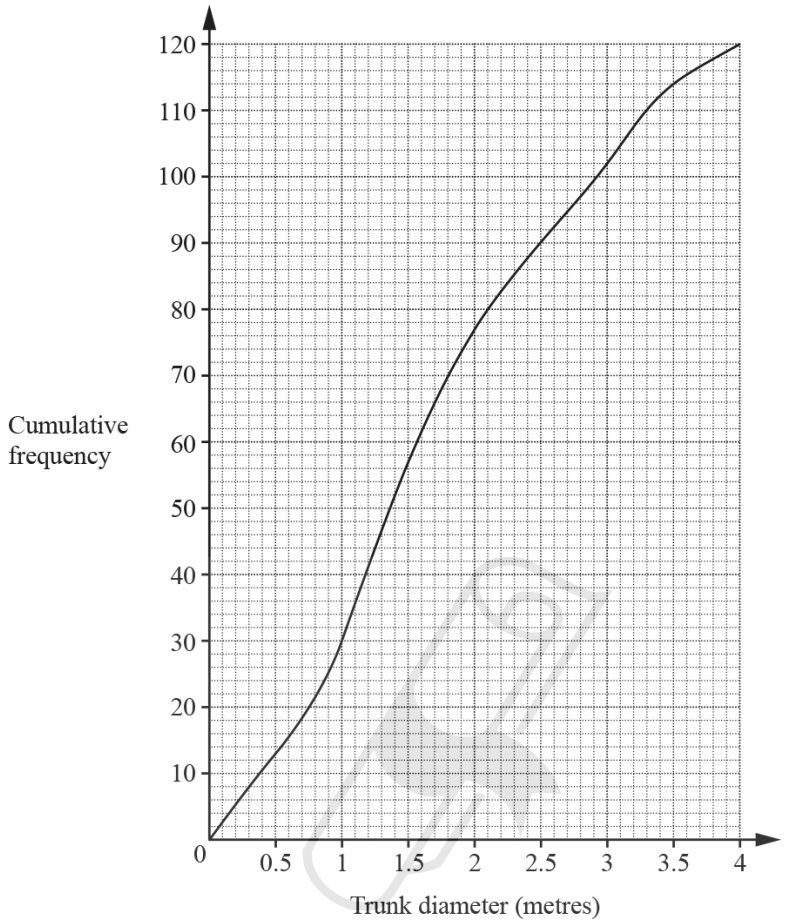
..... [2]

(b) Calculate the percentage of the trains recorded that arrived more than 10 minutes late.

.....% [2]

63. 0580_s16_QP_23 Q: 22

The cumulative frequency diagram shows information about the trunk diameter, in metres, of 120 trees.



Find

(a) the inter-quartile range,

.....m [2]

(b) the 95th percentile,

.....m [2]

(c) the number of trees with a trunk diameter greater than 3 metres.

..... [2]

64. 0580_w16_QP_23 Q: 6

James is an animal doctor.
The table shows some information about the cats he saw in one week.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Number of cats seen	2	4	1	3	2
Mean mass of a cat (kg)	1.9	0.9	2.1	1.8	2

One of the cats James saw had a mass of 4 kg.

On which day did he see this cat?

..... [2]

---

65. 0580_w16_QP_23 Q: 22

The table shows some information about the mass, m grams, of 200 bananas.

Mass (m grams)	$90 < m \leqslant 110$	$110 < m \leqslant 120$	$120 < m \leqslant 125$	$125 < m \leqslant 140$
Frequency	40	70	60	30
Height of column in histogram (cm)			6	

Complete the table.

[4]

---

66. 0580_m15_QP_22 Q: 1

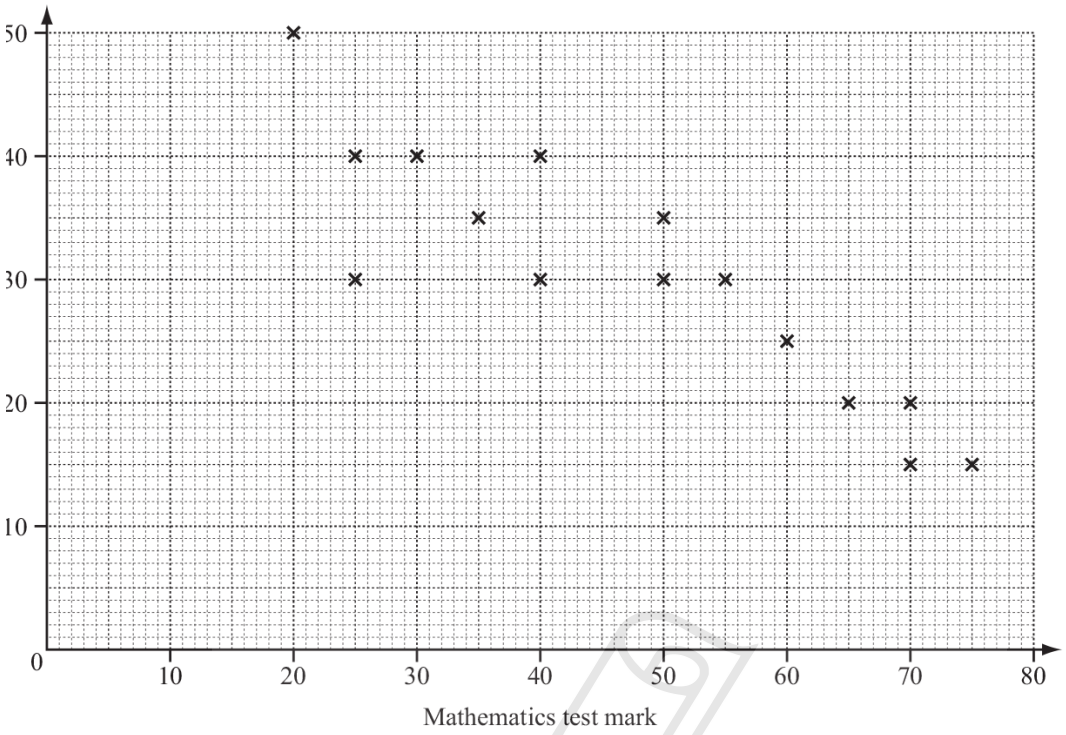
The number of hot drinks sold in a café decreases as the weather becomes warmer.

What type of correlation does this statement show?

Answer ..... [1]

---

67. 0580_P15_QP_20 Q: 12



The scatter diagram shows the marks obtained in a Mathematics test and the marks obtained in an English test by 15 students.

(a) Describe the correlation.

Answer(a) ..... [1]

(b) The mean for the Mathematics test is 47.3 .
The mean for the English test is 30.3 .

Plot the mean point (47.3, 30.3) on the scatter diagram above. [1]

(c) **(i)** Draw the line of best fit on the diagram above. [1]

(ii) One student missed the English test.
She received 45 marks in the Mathematics test.

Use your line to estimate the mark she might have gained in the English test.

Answer(c)(ii) ..... [1]

68. 0580_s15_QP_22 Q: 4

7 9 20 3 9

(a) A number is removed from this list and the median and range do not change.

Write down this number.

Answer(a) ..... [1]

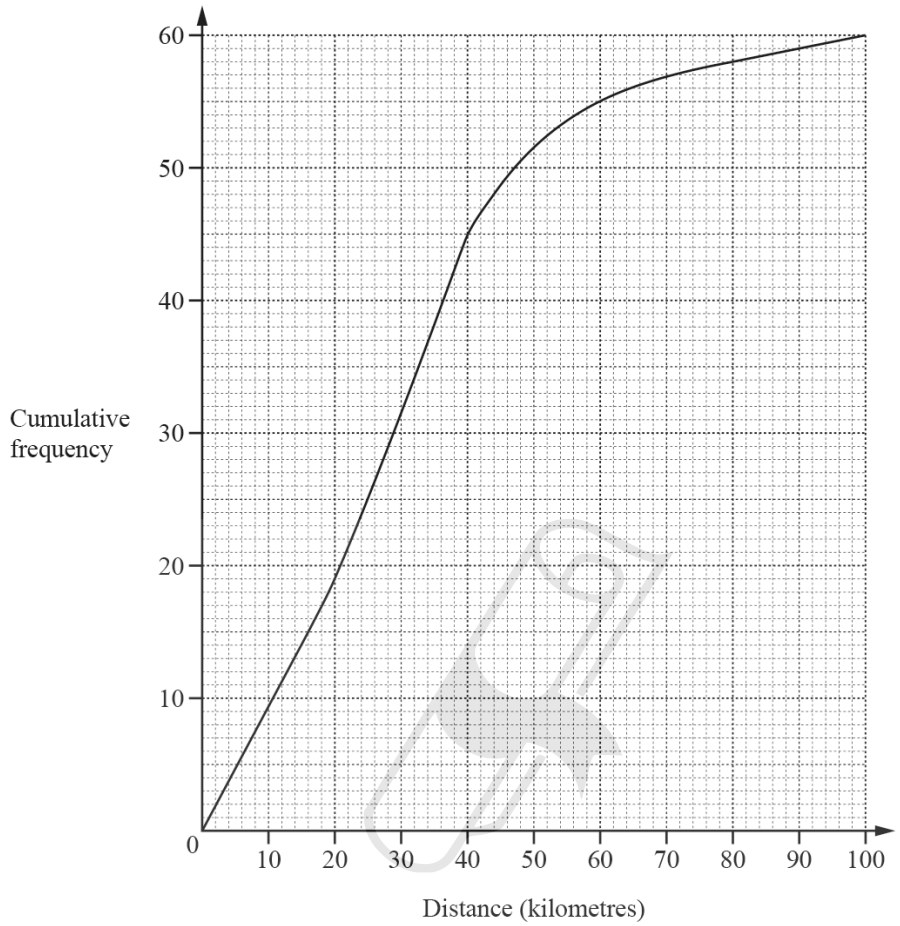
(b) An extra number is included in the original list and the mode does not change.

Write down a possible value for this number.

Answer(b) ..... [1]

69. 0580_s15_QP_22 Q: 22

The cumulative frequency diagram shows information about the distances travelled, in kilometres, by 60 people.



Find

(a) the 80th percentile,

Answer(a) ..... km [2]

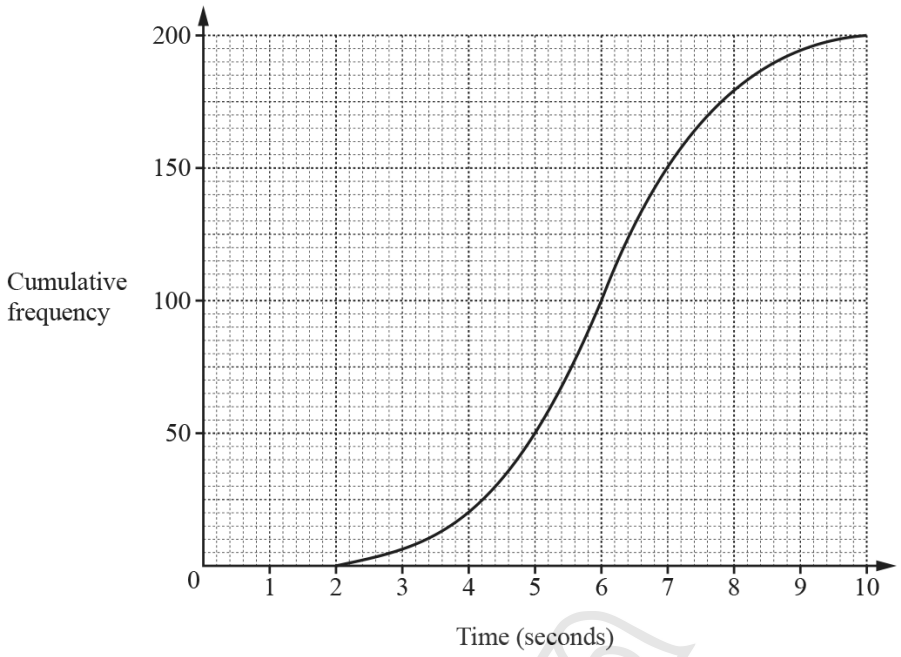
(b) the inter-quartile range,

Answer(b) ..... km [2]

(c) the number of people who travelled more than 60 km.

Answer(c) ..... [2]

70. 0580_s15_QP_23 Q: 17



200 students take a reaction time test.
The cumulative frequency diagram shows the results.

Find

(a) the median,

Answer(a) ..... s [1]

(b) the inter-quartile range,

Answer(b) ..... s [2]

(c) the number of students with a reaction time of more than 4 seconds.

Answer(c) ..... [2]

71. 0580_w15_QP_21 Q: 5

Jim scores the following marks in 8 tests.

7 8 8 y 6 9 10 5

His mean mark is 7.5 .

Calculate the value of y.

Answer y = ... [2]

---

72. 0580_w15_QP_22 Q: 22

The table shows information about the numbers of pets owned by 24 students.

Number of pets	0	1	2	3	4	5	6
Frequency	1	2	3	5	7	3	3

(a) Calculate the mean number of pets.

Answer(a) ..... [3]

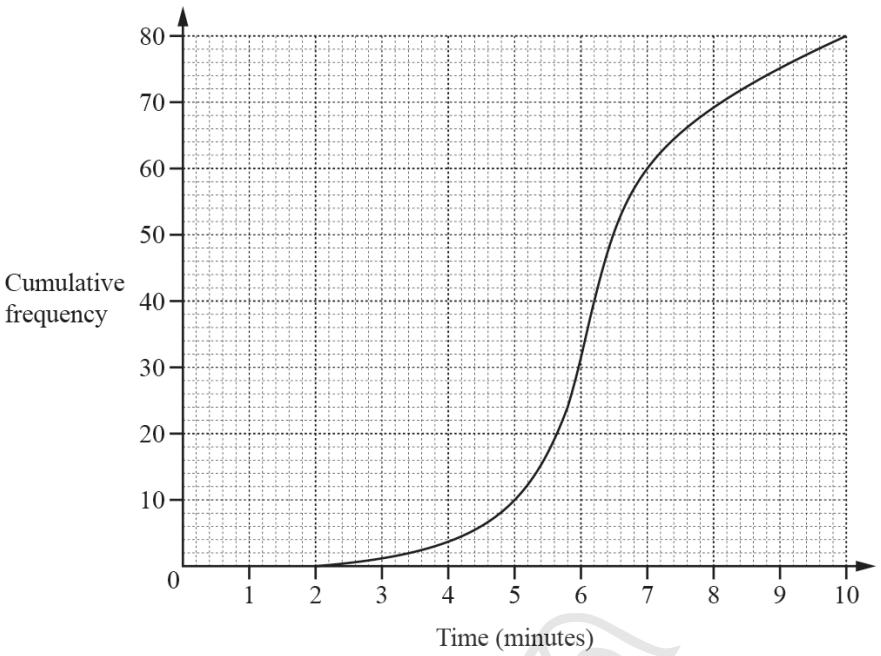
(b) Jennifer joins the group of 24 students.
When the information for Jennifer is added to the table, the new mean is 3.44 .

Calculate the number of pets that Jennifer has.

Answer(b) ..... [3]

---

73. 0580_w15_QP_23 Q: 24



The cumulative frequency diagram shows information about the times, in minutes, taken by 80 students to complete a short test.

Find

(a) the median,

Answer(a) ..... min [1]

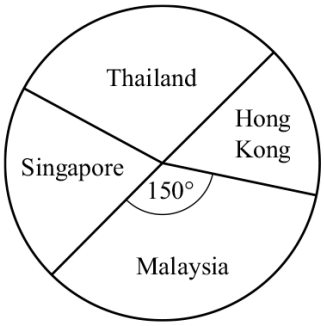
(b) the 30th percentile,

Answer(b) ..... min [2]

(c) the number of students taking more than 5 minutes.

Answer(c) ..... [2]

74. 0580_s14_QP_21 Q: 17



NOT TO SCALE

A travel brochure has 72 holidays in four different countries.
The pie chart shows this information.

(a) There are 24 holidays in Thailand.

Show that the sector angle for Thailand is 120°.

Answer(a)

[2]

(b) The sector angle for Malaysia is 150°.
The sector angle for Singapore is twice the sector angle for Hong Kong.

Calculate the number of holidays in Hong Kong.

Answer(b) ..... [3]

75. 0580_s14_QP_23 Q: 2

Michelle sells ice cream.
The table shows how many of the different flavours she sells in one hour.

Flavour	Vanilla	Strawberry	Chocolate	Mango
Number sold	6	8	9	7

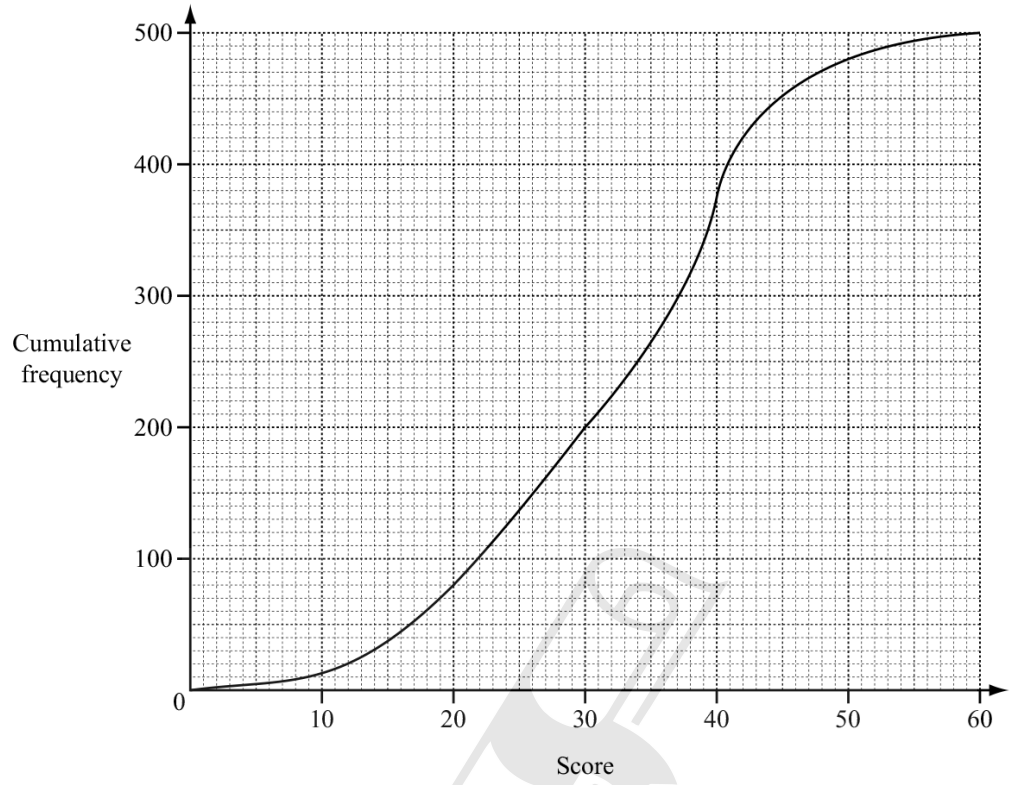
Michelle wants to show this information in a pie chart.

Calculate the sector angle for mango.

Answer ..... [2]

76. 0580_s14_QP_23 Q: 20

Jenna draws a cumulative frequency diagram to show information about the scores of 500 people in a quiz.



Use the diagram to find

(a) the median score,

Answer(a) ..... [1]

(b) the inter-quartile range,

Answer(b) ..... [2]

(c) the 40th percentile,

Answer(c) ..... [1]

(d) the number of people who scored 30 or less but more than 20.

Answer(d) ..... [1]

77. 0580_w14_QP_21 Q: 4

Cheryl recorded the midday temperatures in Seoul for one week in January.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Temperature (°C)	–4	–5	–3	–11	–8	–3	–1

(a) Write down the mode.

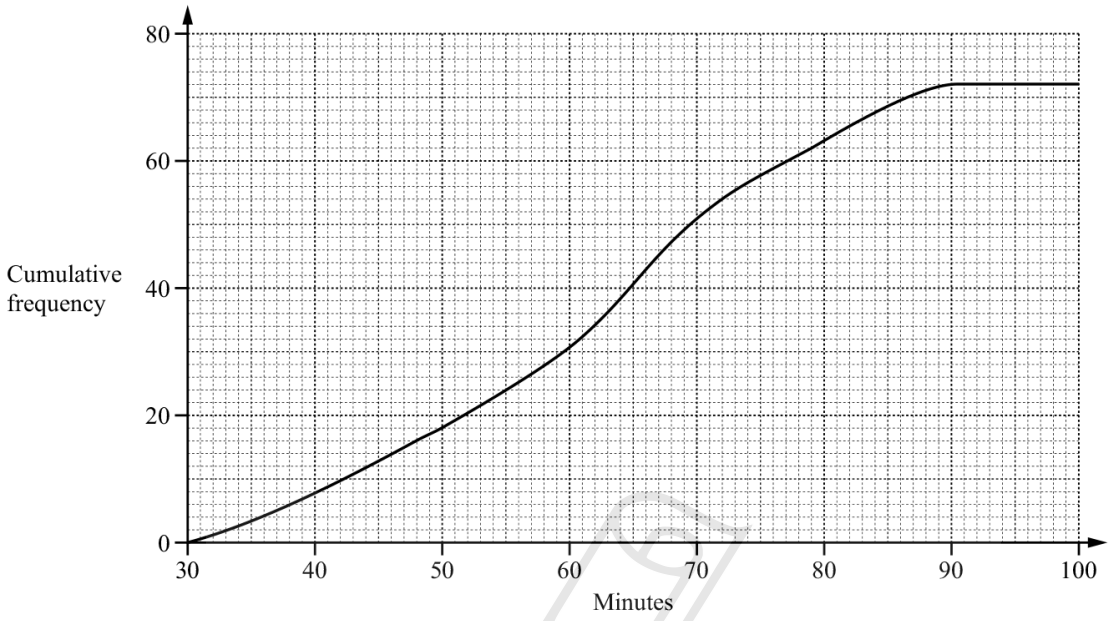
Answer(a) ..... °C [1]

(b) On how many days was the temperature lower than the mode?

Answer(b) ..... [1]

78. 0580_w14_QP_22 Q: 18

72 students are given homework one evening.
They are told to spend no more than 100 minutes completing their homework.
The cumulative frequency diagram shows the number of minutes they spend.



(a) How many students spent more than 48 minutes completing their homework?

Answer(a) ..... [2]

(b) Find

(i) the median,

Answer(b)(i) ..... [1]

(ii) the inter-quartile range.

Answer(b)(ii) ..... [2]

79. 0580_w14_QP_23 Q: 4

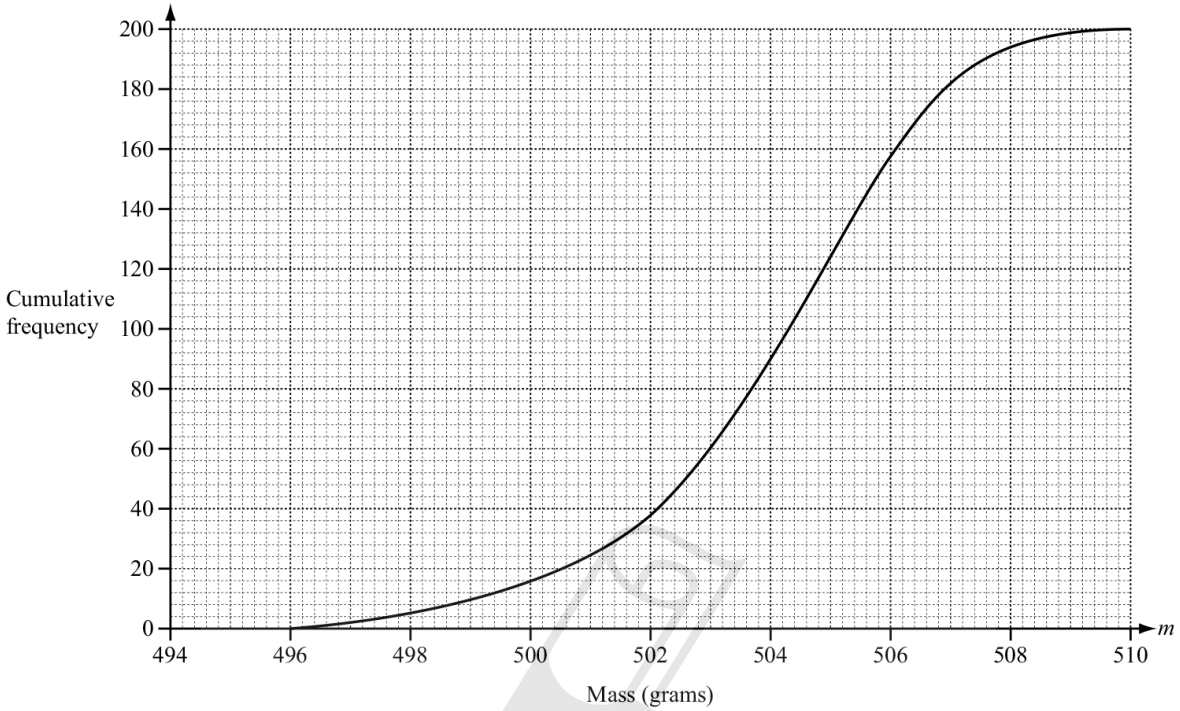
The four sector angles in a pie chart are $2x°$, $3x°$, $4x°$ and $90°$.

Find the value of x.

Answer x = ... [2]

80. 0580_w14_QP_23 Q: 17

The mass, m grams, of cornflakes in each of 200 boxes is recorded.
The cumulative frequency diagram shows the results.



(a) Use the diagram to estimate the inter-quartile range.

Answer(a) ..... g [2]

(b) Find the probability that a box chosen at random has a mass of 500 grams or less.

Answer(b) ..... [2]

(c)

Mass (m grams)	$496 < m \leqslant 500$	$500 < m \leqslant 504$	$504 < m \leqslant 508$	$508 < m \leqslant 510$
Frequency	16	74	104	6

The data in this frequency table is to be shown in a histogram.

Complete the frequency density table below.

Mass (m grams)	$496 < m \leqslant 500$	$500 < m \leqslant 504$	$504 < m \leqslant 508$	$508 < m \leqslant 510$
Frequency density	4			

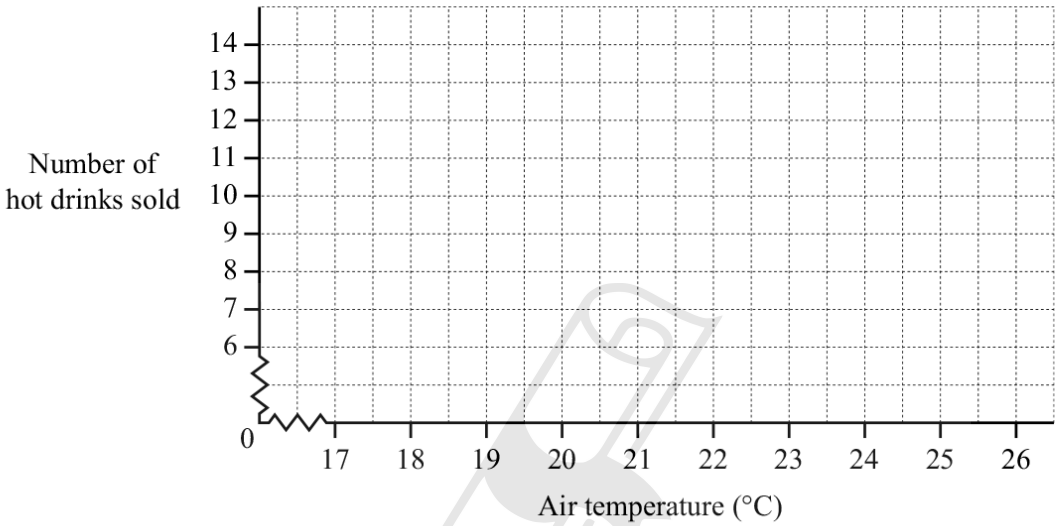
[2]

81. 0580_s13_QP_22 Q: 17

The owner of a small café records the average air temperature and the number of hot drinks he sells each day for a week.

Air temperature (°C)	18	23	19	23	24	25	20
Number of hot drinks sold	12	8	13	10	9	7	12

(a) On the grid, draw a scatter diagram to show this information.



[2]

(b) What type of correlation does your scatter diagram show?

Answer(b) ..... [1]

(c) Draw a line of best fit on the grid. [1]

82. 0580_s13_QP_22 Q: 20

The heights, in metres, of 200 trees in a park are measured.

Height (h m)	$2 < h \leqslant 6$	$6 < h \leqslant 10$	$10 < h \leqslant 13$	$13 < h \leqslant 17$	$17 < h \leqslant 19$	$19 < h \leqslant 20$
Frequency	23	47	45	38	32	15

(a) Find the interval which contains the median height.

Answer(a) ..... [1]

(b) Calculate an estimate of the mean height.

Answer(b) ..... m [4]

(c) Complete the cumulative frequency table for the information given in the table above.

Height (h m)	$2 < h \leqslant 6$	$h \leqslant 10$	$h \leqslant 13$	$h \leqslant 17$	$h \leqslant 19$	$h \leqslant 20$
Cumulative frequency	23					

[2]

83. 0580_w13_QP_22 Q: 4

Bruce plays a game of golf.
His scores for each of the 18 holes are shown below.

2	3	4	5	4	6	2	3	4
4	5	3	4	3	5	4	4	4

The information is to be shown in a pie chart.

Calculate the sector angle for the score of 4.

Answer ..... [2]

---

84. 0580_w13_QP_22 Q: 10

The table shows how the dollar to euro conversion rate changed during one day.

Time	1000	1100	1200	1300	1400	1500	1600
$1	€1.3311	€1.3362	€1.3207	€1.3199	€1.3200	€1.3352	€1.3401

Khalil changed $500 into euros (€).

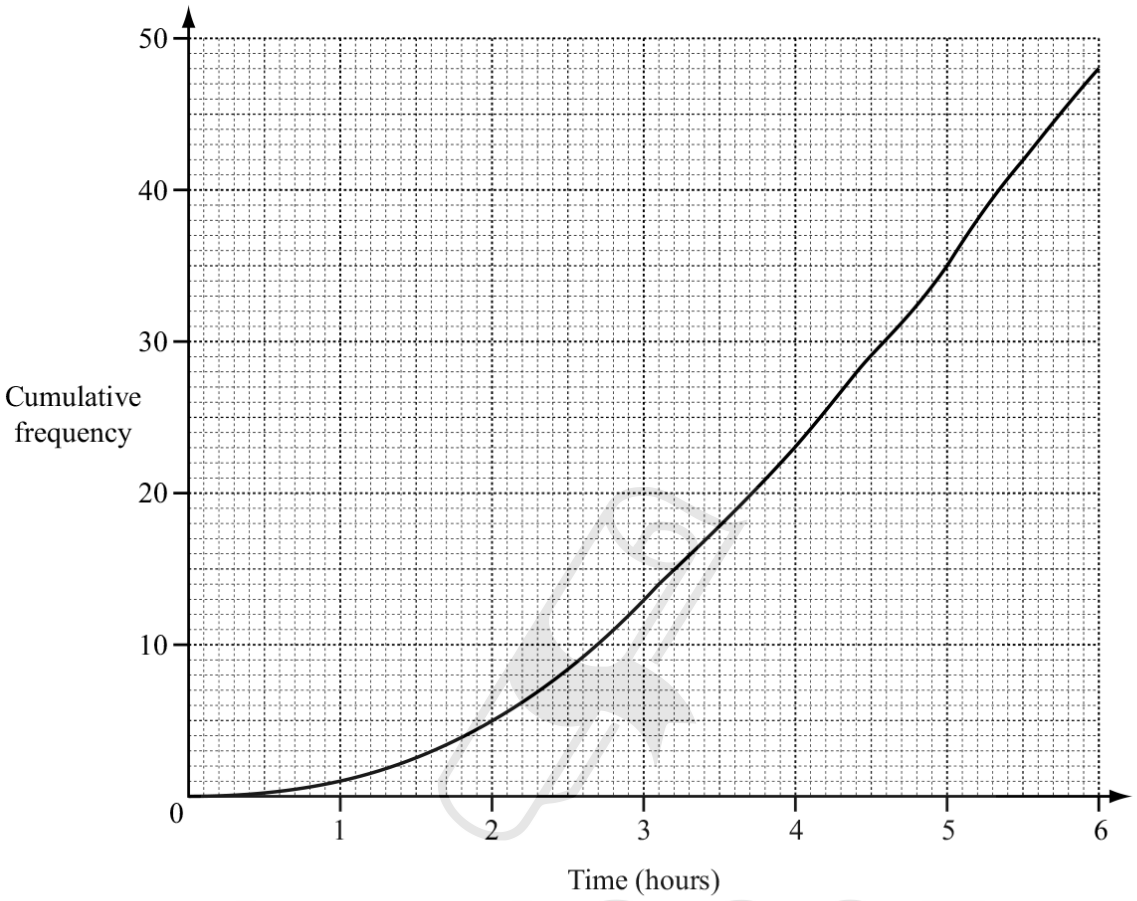
How many more euros did Khalil receive if he changed his money at the highest rate compared to the lowest rate?

Answer € ..... [3]

---

85. 0580_w13_QP_22 Q: 20

During one day 48 people visited a museum.
The length of time each person spent in the museum was recorded.
The results are shown on the cumulative frequency diagram.



Work out

(a) the median,

Answer(a) ..... h [1]

(b) the 20th percentile,

Answer(b) ..... h [2]

(c) the inter-quartile range,

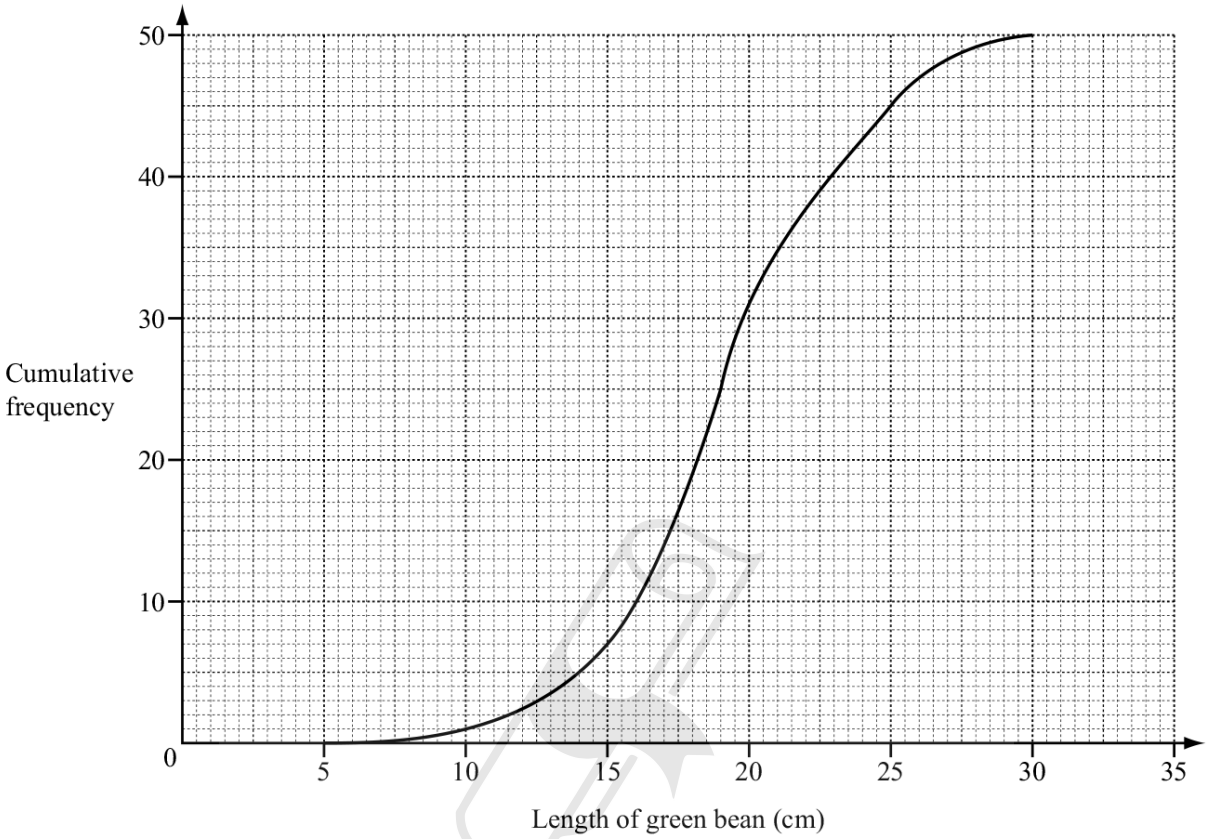
Answer(c) ..... h [2]

(d) the probability that a person chosen at random spends 2 hours or less in the museum.

Answer(d) ..... [2]

86. 0580_w13_QP_23 Q: 18

A gardener measured the lengths of 50 green beans from his garden.
The results have been used to draw this cumulative frequency diagram.



Work out

(a) the median,

Answer(a) ..... cm [1]

(b) the number of green beans that are longer than 26 cm,

Answer(b) ..... [2]

(c) the inter-quartile range,

Answer(c) ..... cm [2]

(d) the probability that a green bean chosen at random is more than 14 cm long.

Answer(d) ..... [2]

87. 0580_s12_QP_21 Q: 6

Leon scores the following marks in 5 tests.

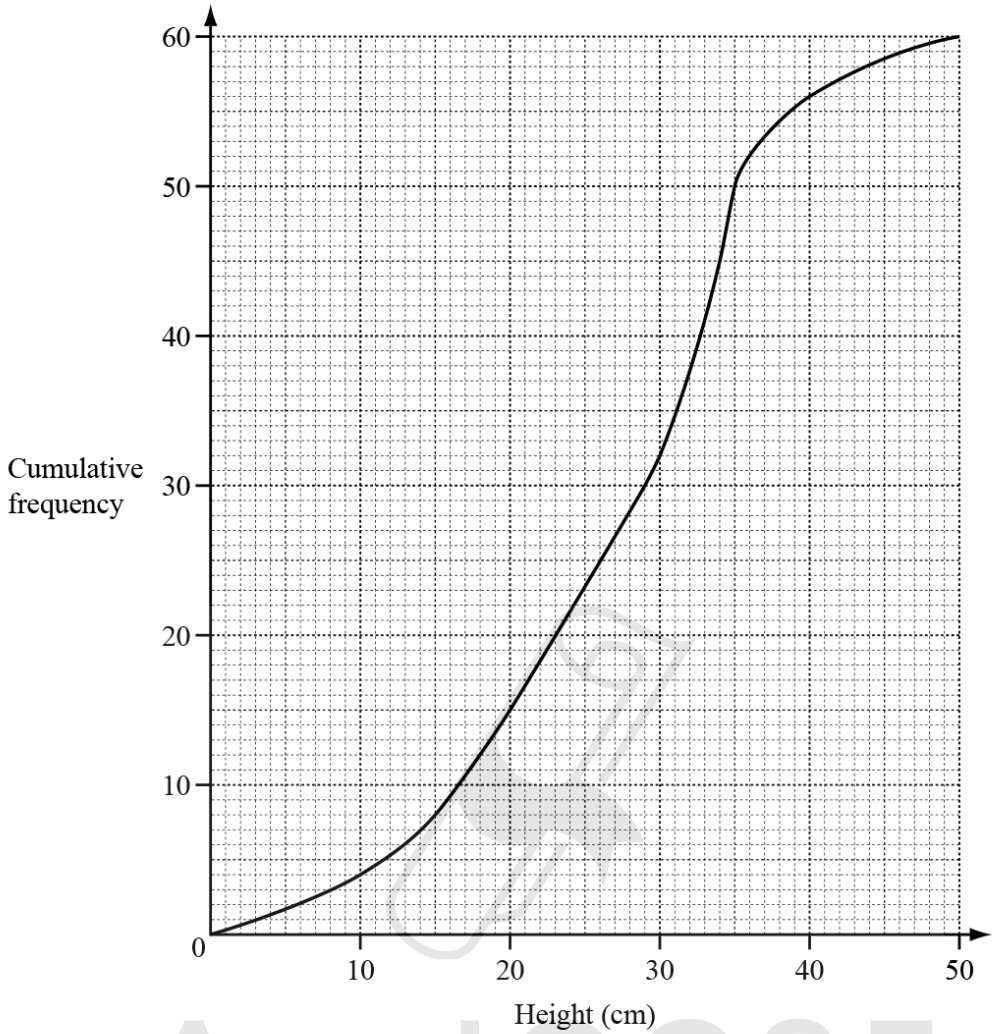
8 4 8 y 9

His mean mark is 7.2.

Calculate the value of y.

Answer y = ... [2]

88. 0580_s12_QP_22 Q: 15



The cumulative frequency diagram shows information about the heights of 60 tomato plants.
Use the diagram to find

(a) the median,

Answer(a) ..... cm [1]

(b) the lower quartile,

Answer(b) ..... cm [1]

(c) the interquartile range,

Answer(c) ..... cm [1]

(d) the probability that the height of a tomato plant, chosen at random, will be more than 15 cm.

Answer(d) ..... [2]

89. 0580_s12_QP_23 Q: 7

Height (h cm)	$0 < h \leqslant 10$	$10 < h \leqslant 15$	$15 < h \leqslant 30$
Frequency	25	u	9
Frequency density	2.5	4.8	v

The table shows information about the heights of some flowers.

Calculate the values of u and v.

Answer $u =$ .....

$v =$ ..... [2]

90. 0580_w12_QP_21 Q: 18

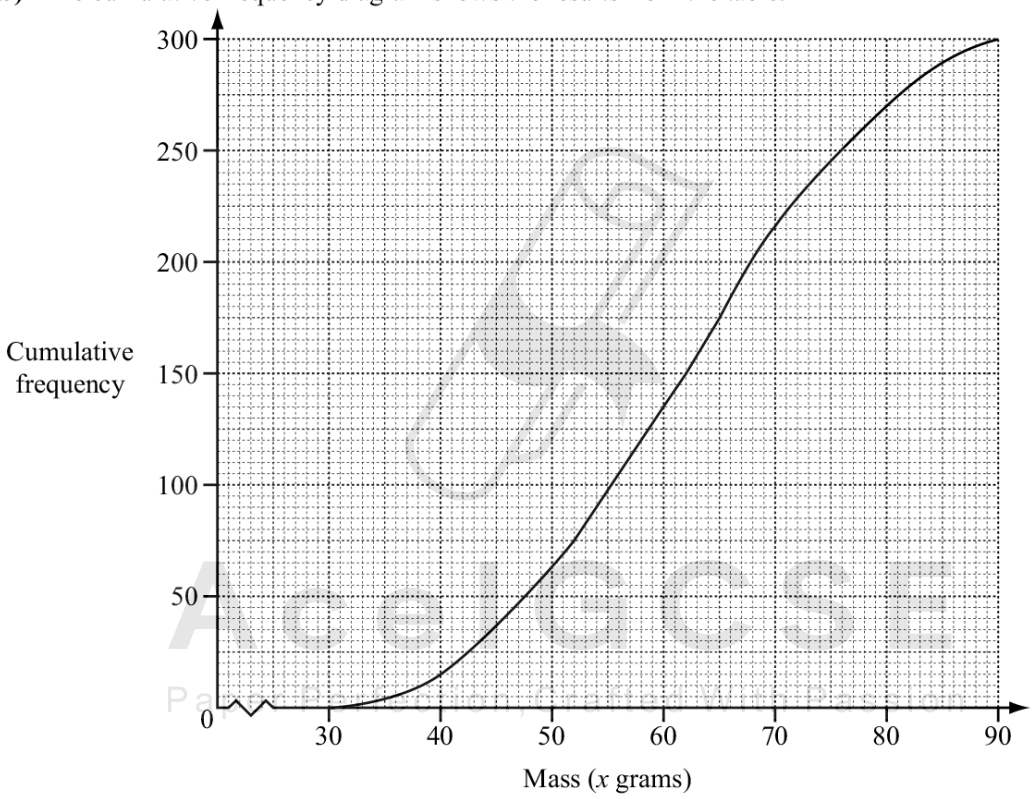
Lauris records the mass and grade of 300 eggs. The table shows the results.

Mass (x grams)	$30 < x \leqslant 40$	$40 < x \leqslant 50$	$50 < x \leqslant 60$	$60 < x \leqslant 70$	$70 < x \leqslant 80$	$80 < x \leqslant 90$
Frequency	15	48	72	81	54	30
Grade	small		medium	large	very large	

(a) Find the probability that an egg chosen at random is graded very large.

Answer(a) ..... [1]

(b) The cumulative frequency diagram shows the results from the table.



Use the cumulative frequency diagram to find

(i) the median,

Answer(b)(i) ..... g [1]

(ii) the lower quartile,

Answer(b)(ii) ..... g [1]

(iii) the inter-quartile range,

Answer(b)(iii) ..... g [1]

(iv) the number of eggs with a mass greater than 65 grams.

Answer(b)(iv) ..... [2]

91. 0580_w12_QP_22 Q: 6

In a traffic survey of 125 cars the number of people in each car was recorded.

Number of people in each car	1	2	3	4	5
Frequency	50	40	10	20	5

Find

(a) the range,

Answer(a) ..... [1]

(b) the median,

Answer(b) ..... [1]

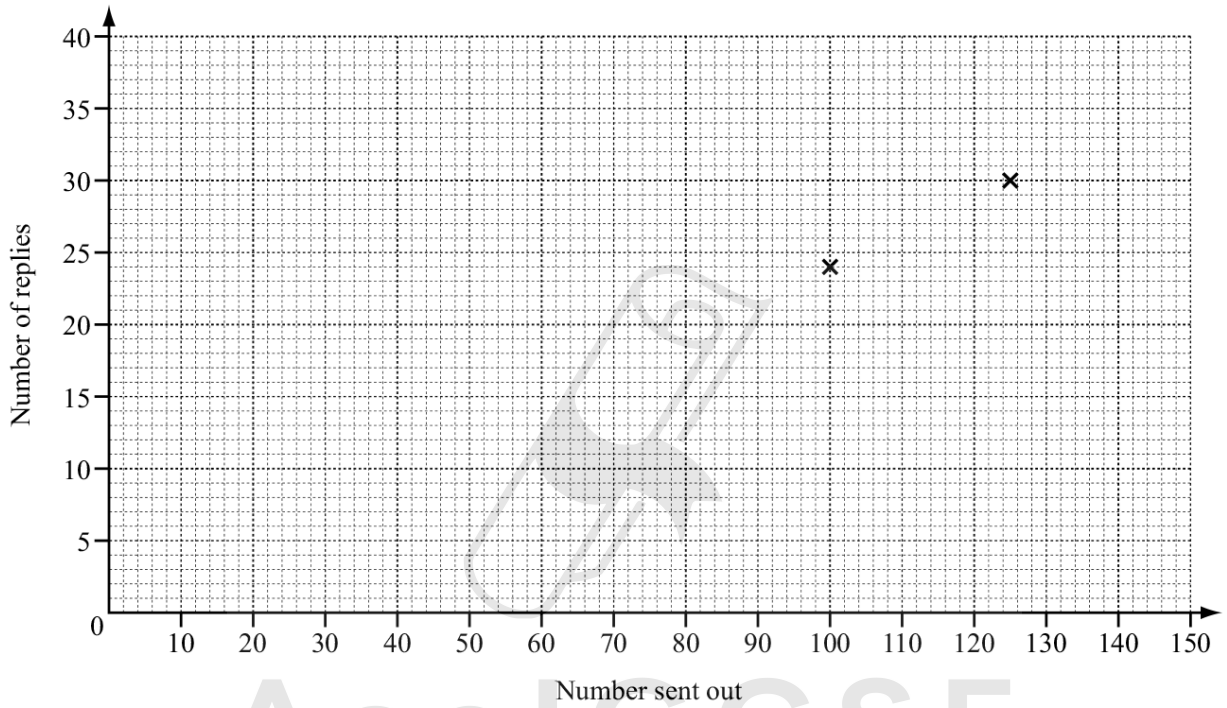
(c) the mode.

Answer(c) ..... [1]

92. 0580_w12_QP_22 Q: 16

A company sends out ten different questionnaires to its customers.
The table shows the number sent and replies received for each questionnaire.

Questionnaire	A	B	C	D	E	F	G	H	I	J
Number sent out	100	125	150	140	70	105	100	90	120	130
Number of replies	24	30	35	34	15	25	22	21	30	31



(a) Complete the scatter diagram for these results.
The first two points have been plotted for you. [2]

(b) Describe the correlation between the two sets of data.

Answer(b) ..... [1]

(c) Draw the line of best fit. [1]

93. 0580_w12_QP_23 Q: 12

Mass of parcel (m kilograms)	$0 < m \leqslant 0.5$	$0.5 < m \leqslant 1.5$	$1.5 < m \leqslant 3$
Frequency	20	18	9

The table above shows information about parcels in a delivery van.

John wants to draw a histogram using this information.
Complete the table below.

Mass of parcel (m kilograms)	$0 < m \leqslant 0.5$	$0.5 < m \leqslant 1.5$	$1.5 < m \leqslant 3$
Frequency density		18	

[2]