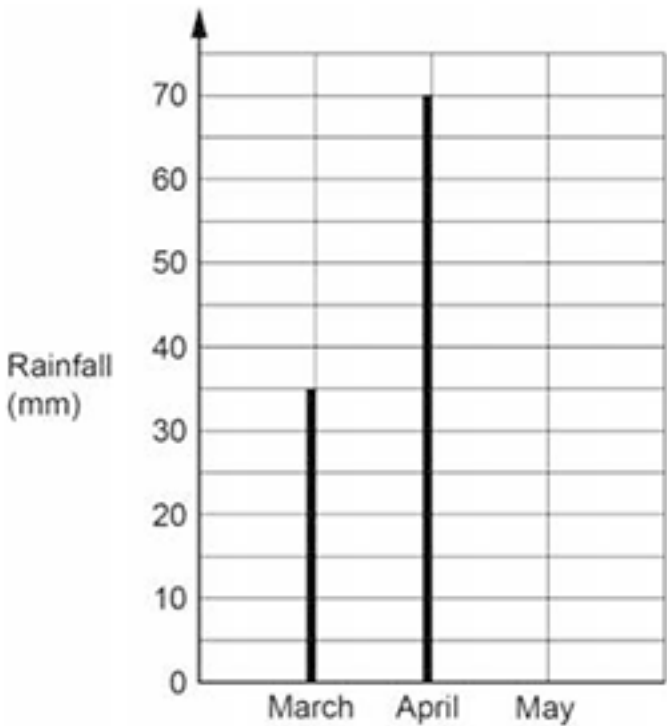


1(a). The vertical line chart shows the rainfall, in millimetres (mm), in March and April.



Write down the rainfall in April.

..... mm [1]

(b). In May there was 65 mm of rainfall.

Complete the vertical line chart for May.

[1]

(c). Given there was 65mm of rainfall in May, work out the **total** rainfall for March, April and May.

..... mm [2]

2(a). Here is a list of five numbers.

10 3 28 44 11

Find the range.

..... [2]

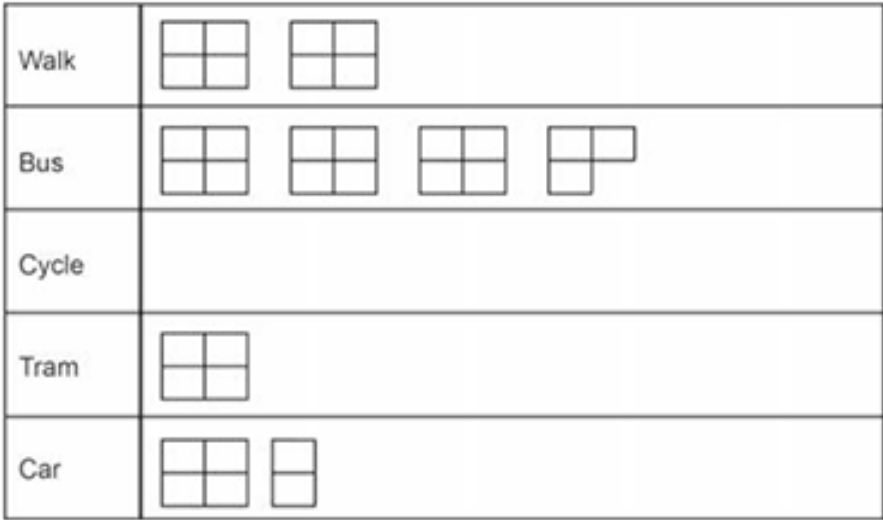
(b). A sixth number is added to the list.
The mean of the **six** numbers is 17.5.

Work out the sixth number.

..... [3]

3(a). 200 students at a school were asked how they travel to school.

The pictogram shows the results for four of the ways they travel to school.



Key:  represents 20 students.

How many students take the tram to school?

..... [1]

(b). How many **more** students walk to school than travel by car to school?

..... [2]

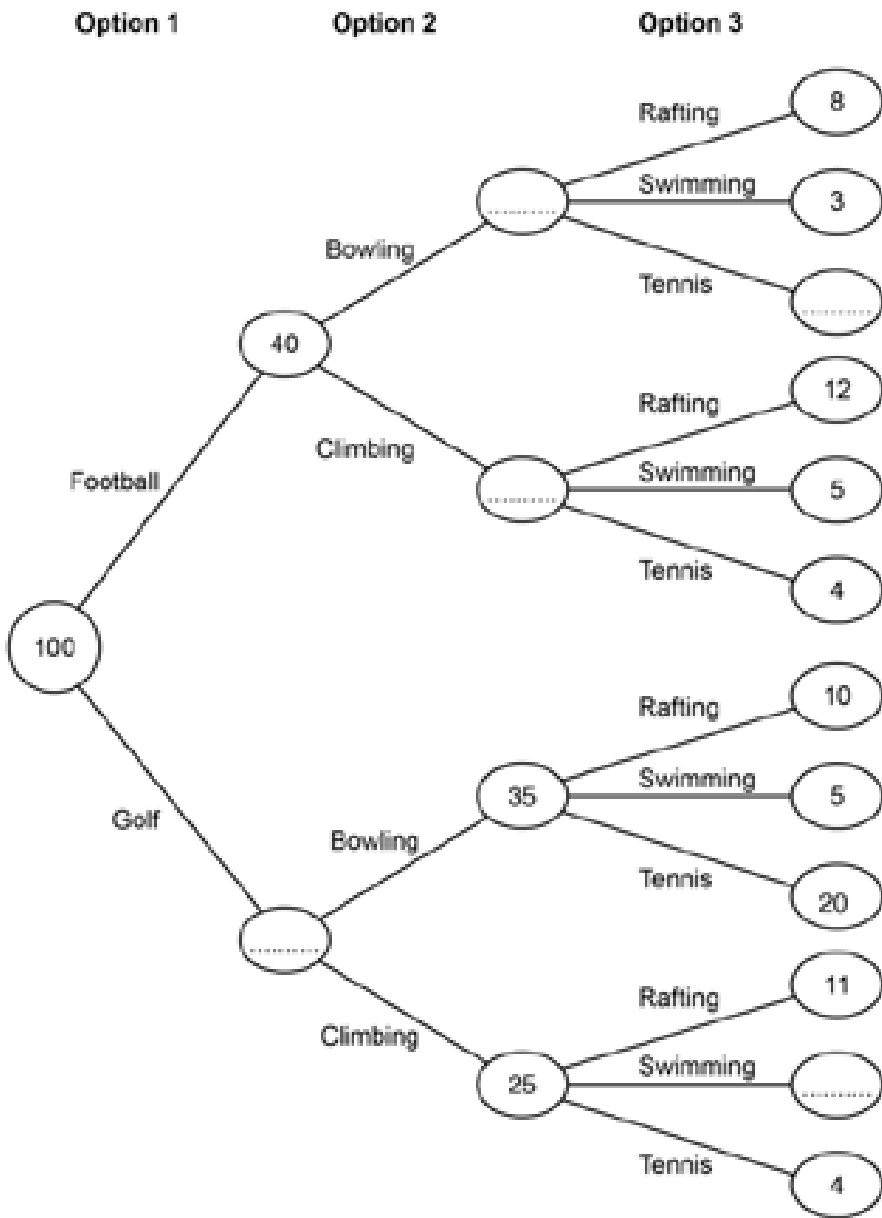
(c). The rest of the 200 students cycle to school.

Complete the pictogram to show the number of students who cycle to school.

4(a). At an adventure park, all children participate in three activities, choosing exactly one activity from each of three options.

Option	Activity
1	football or golf
2	bowling or climbing
3	rafting or swimming or tennis

On one Monday morning, 100 children visited the adventure park.
The frequency tree shows the number of children choosing some of the activities.



Complete the frequency tree.

because

[3]

..... [2]

 [1]

 [1]

6. 50 students are asked how many books they have read this month.

The table shows the results.

Number of books	Frequency	
0	11	
1	10	
2	9	
3	7	
4	8	
5	5	
Total	50	

Work out the mean number of books read this month by the 50 students.

..... [3]

7(a). Here is a list of five numbers.

12 13 6 5 8

Write down the median.

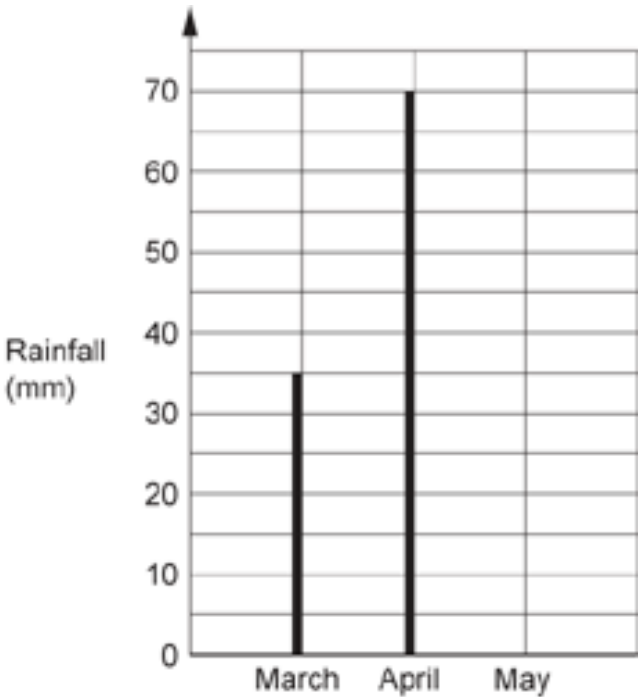
..... [1]

(b). A sixth number is added to the list.
The range of the six numbers is 11.

Work out a possible value for the sixth number.

..... [2]

8(a). The vertical line chart shows the rainfall, in millimetres (mm), in March and April.



Write down the rainfall in March.

.....mm [1]

(b). In May there was 55 mm of rainfall.

Complete the vertical line chart for May.

[1]

(c). Given there was 55mm of rainfall in May, work out the **total** rainfall for March, April and May.

.....mm [2]

9(a). Here is a list of five numbers.

14 2 26 43 9

Find the range.

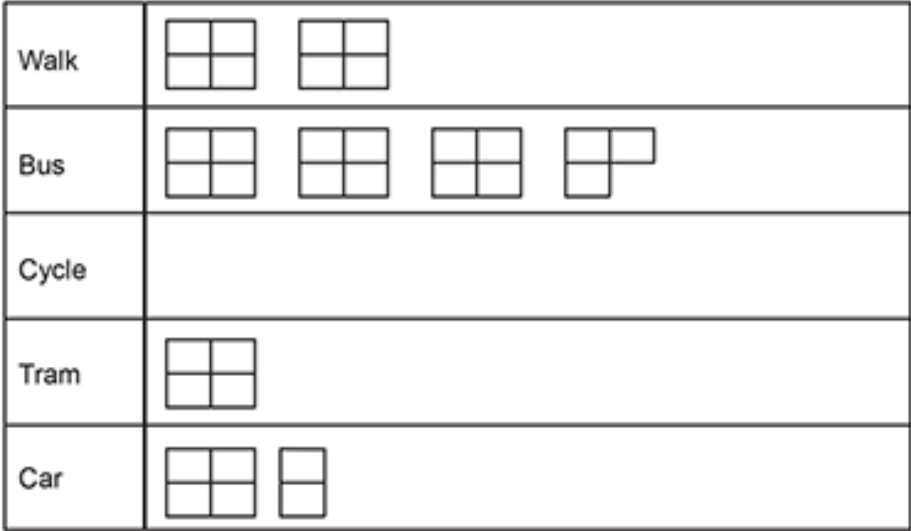
..... [2]

(b). A sixth number is added to the list.
The mean of the **six** numbers is 23.5.

Work out the sixth number.

..... [3]

10(a). 200 students at a school were asked how they travel to school.
The pictogram shows the results for four of the ways they travel to school.



Key:  represents 20 students.

How many students walk to school?

..... [1]

(b). How many **more** students travel by car to school than travel by tram to school?

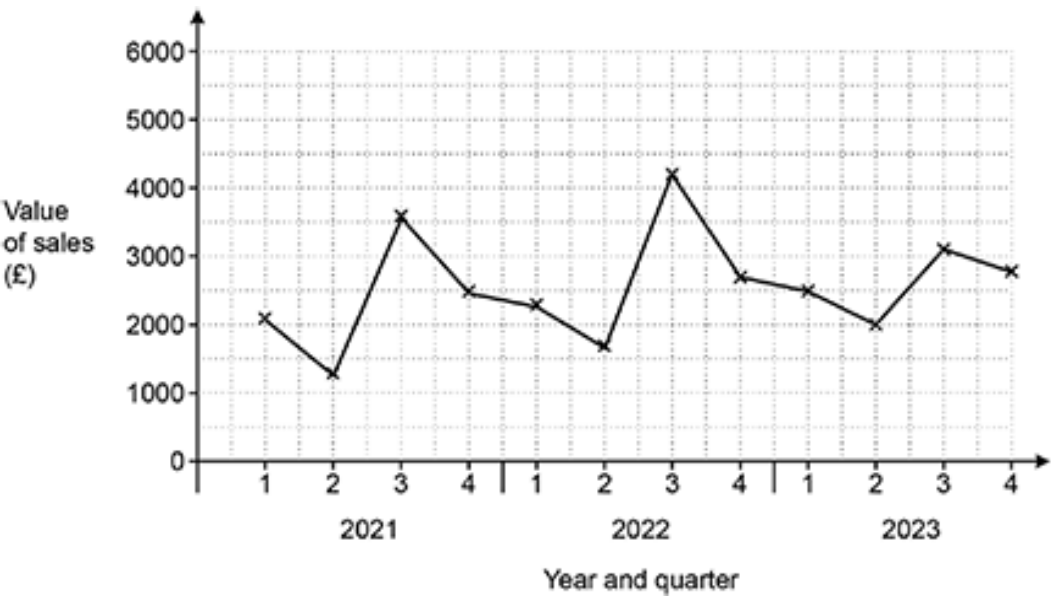
..... [2]

(c). The rest of the 200 students cycle to school.

Complete the pictogram to show the number of students who cycle to school.

[3]

11(a). The graph shows the value of sunscreen products sold in a shop for each quarter from quarter 1 of 2021 to quarter 4 of 2023.



Make **one** comment about the **annual** variation shown in this graph.

[1]

(b). In one of these years, quarter 3 was very sunny.
Write down which year this is most likely to be.
Give a reason for your answer.

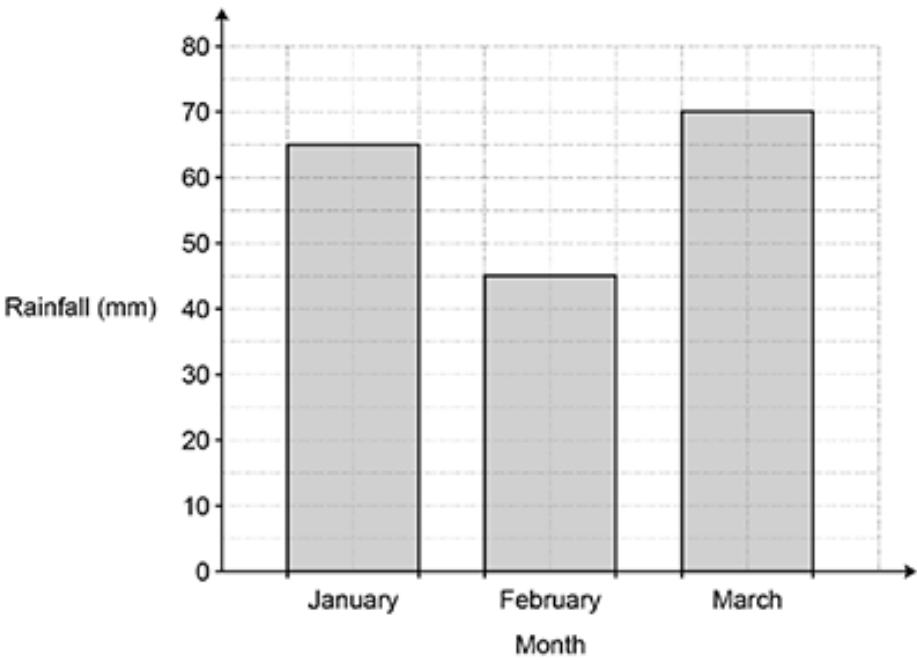
Year _____ because _____

[1]

(c). The manager of the shop says that the value of sales in quarter 2 of 2024 will be £2400.
What assumption has the manager made?

[1]

12(a). The bar chart shows the rainfall, in millimetres (mm), for a town in the first three months of the year.



Write down the amount of rain in February.

..... mm **[1]**

(b). Write in its simplest form the ratio
amount of rainfall in February : amount of rainfall in March.

..... : **[2]**

(c). The total amount of rainfall in January and February was the same as the total amount of rainfall in March and April.

Work out the amount of rainfall in April.

..... mm **[3]**

13. Three adults, Kai, Riley and Sam, are comparing their age in years.

Kai is 23.
Riley is 47.
The mean age of Kai, Riley and Sam is 40.

Work out the age of Sam.

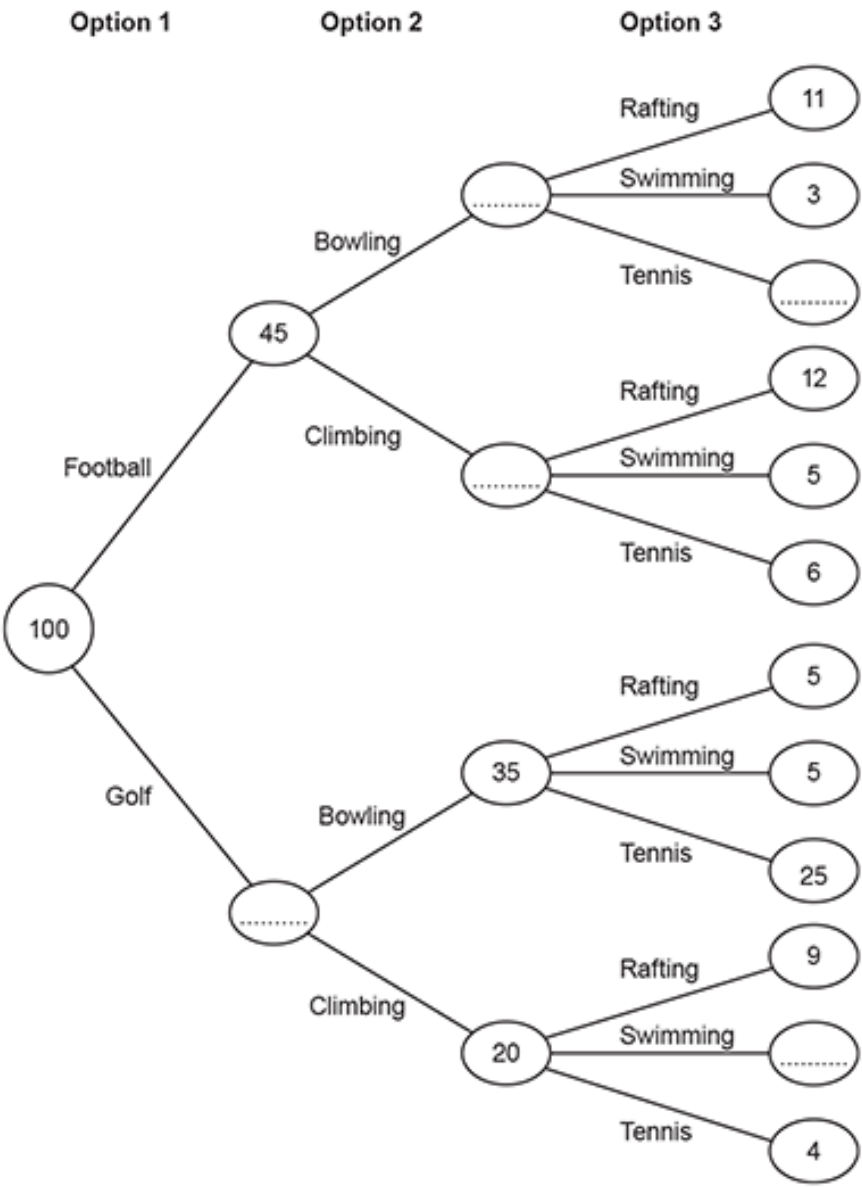
..... [3]

14(a). At an adventure park, all children participate in three activities, choosing exactly one activity from each of three options.

Option	Activity
1	football or golf
2	bowling or climbing
3	rafting or swimming or tennis

On one Monday morning, 100 children visited the adventure park.

The frequency tree shows the number of children choosing some of the activities.



Complete the frequency tree.

(b). Which was the most popular activity out of rafting, swimming and tennis?
Show how you decide.

_____ because _____

[3]

[3]

(c). One of the 100 children is picked at random.

Find the probability that this child chose bowling.

..... [2]

(d). Alex says

45% of all children coming to the adventure park choose football.

What assumption has Alex made?

..... [1]

15. A machine makes bolts that should be 30.0 mm long, correct to 1 decimal place.

Jane checks the accuracy of the machine by taking a random sample of 10 of the bolts.
Here are the lengths, in mm correct to 1 decimal place, of the bolts in Jane’s sample.

29.5 29.1 30.0 30.0 30.2 30.0 30.0 30.0 30.5 30.0

The machine makes 2000 of these bolts that day.

Jane says

6 of the 10 bolts in the sample are of the correct length. That is 60%.
Therefore, 1200 of the 2000 bolts will be of the correct length because that is 60%.

Give a reason why Jane’s claim may be unreliable.

..... [1]

16. 50 students are asked how many books they have read this month.
The table shows the results.

Number of books	Frequency	
0	11	
1	8	
2	10	
3	8	
4	7	
5	6	
Total	50	

Work out the mean number of books read this month by the 50 students.

..... **[3]**

17(a). Here is a list of five numbers.

10 12 4 3 6

Write down the median.

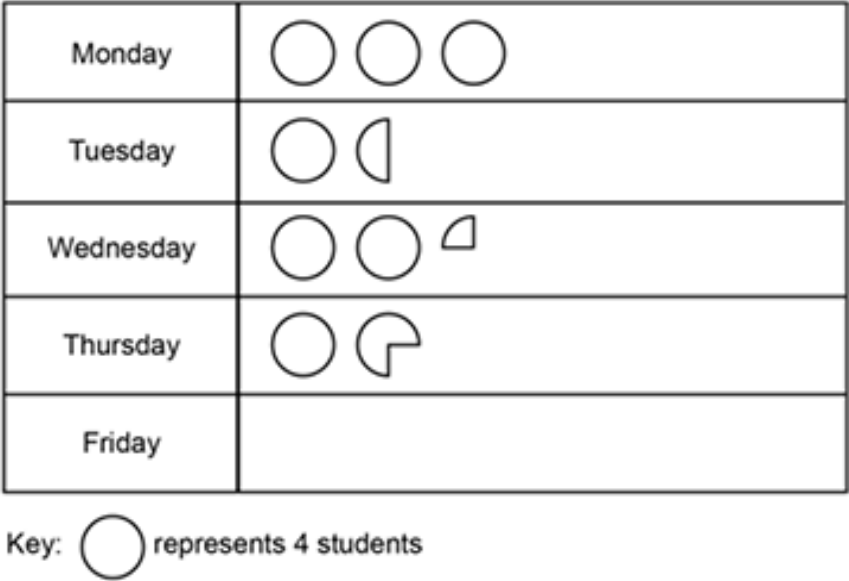
..... **[1]**

(b). A sixth number is added to the list.
The range of the six numbers is 15.

Work out a possible value for the sixth number.

..... **[2]**

18(a). The pictogram shows the number of students who were late to school in a particular week.



Alex says

The pictogram shows 3 circles for Monday.
Therefore 3 students were late on Monday.

Explain what Alex has done wrong.
Write down the correct number of students who were late on Monday.

Alex has _____

Correct number **[2]**

(b). 10 students were late on Friday.

Complete the pictogram above to show this information.

[1]

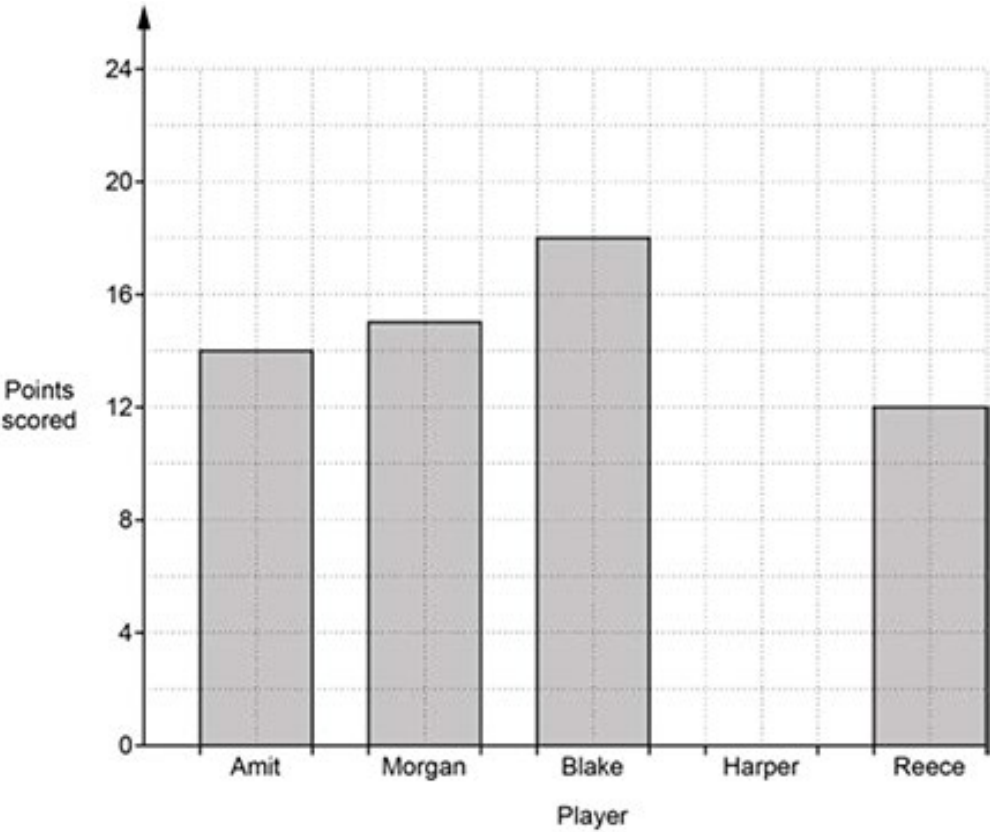
19. At the end of each day, a driver works out the mean distance they have driven so far that week.

At the end of 5 days, the mean distance they have driven is 177.5 miles per day.
At the end of 6 days, the mean distance they have driven is 180 miles per day.

Work out how many miles the driver drove on the sixth day of that week.

..... miles [4]

20(a). The bar chart shows the number of points scored by some quiz players.



How many points were scored by Reece?

..... [1]

(b). How many more points were scored by Blake than Amit?

..... [1]

(c). Harper scored 17 points.

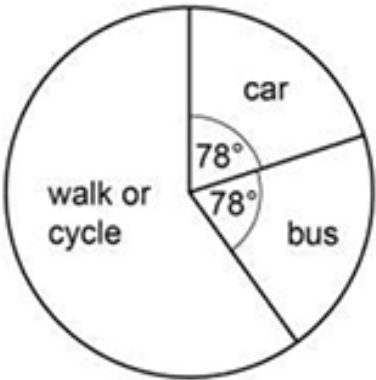
Complete the bar chart to show this information.

[1]

21(a). A school has 540 students.

This pie chart shows the way that all 540 students travel to the school.

Each student either walked or cycled or travelled by bus or travelled by car.



Work out how many of the 540 students travel to the school by car.

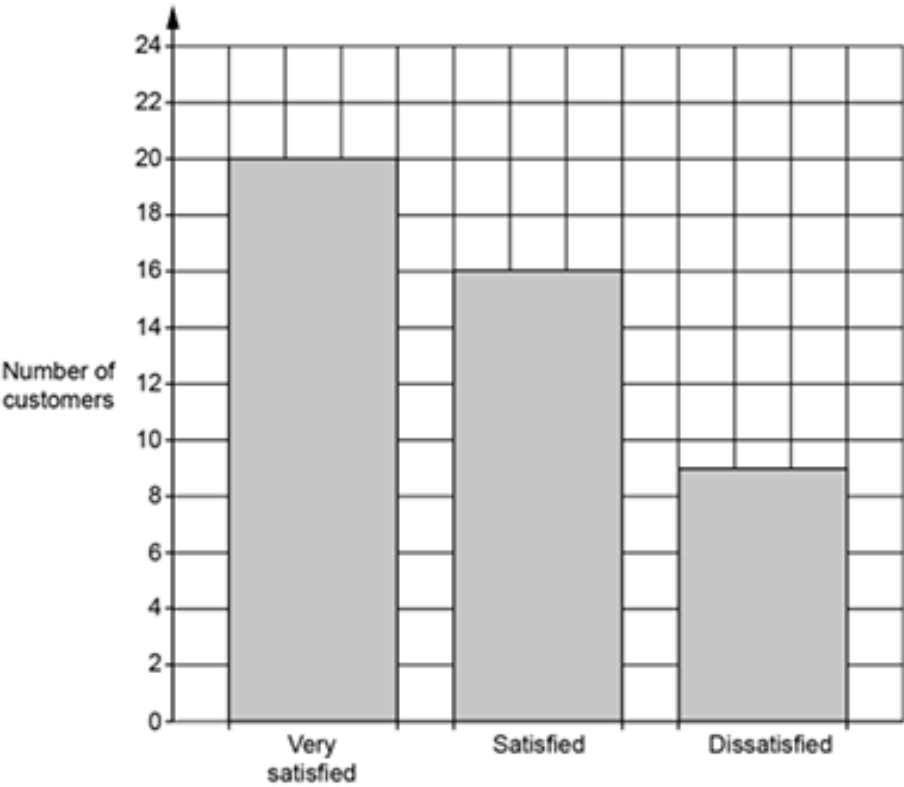
..... [3]

(b). The number of students who walk is three times the number who cycle.

Work out the sector angle for the students who walk to school.
You do **not** need to draw this on the pie chart.

..... [3]

22(a). A cafe carries out a satisfaction survey on a sample of its customers.
The bar chart shows the results.

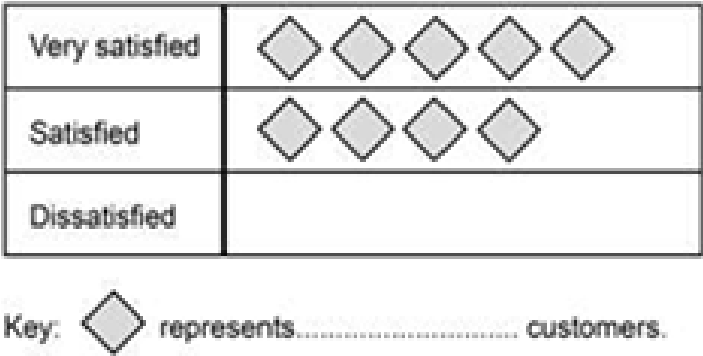


Work out how many customers were in the sample.

..... [2]

(b). The café owner decides to display the results in a pictogram.

Complete the final row of the pictogram and the key.



[2]

23. Ashley has four differently numbered cards.

- The range of the numbers is 16.
- The median of the numbers is 12.
- All the numbers are prime numbers.
- The highest number is 23.

Work out the numbers on the cards.
Write the numbers in order of size.

23
[3]
highest

24. In a dance competition, four judges award marks to each dancer.
Each judge can award 1, 2, 3, 4 or 5 marks.

The four judges' median mark, m , is put into the formula

$$S = 10m - 5$$

to get the dancer's score, S .

Taylor is awarded marks of 3, 1, 2 and 3.
Work out Taylor's score.

..... **[3]**

25. This list represents four numbers.

137 $x - 2$ x $3x$

The **mean** of the four numbers is 150.

Work out the numbers.
You must show your working.

137
..... **[5]**

26. Here is a list of numbers.

9 6 7 3 4 12 9

Find the median.

..... [1]

27. In a dance competition, four judges award marks to each dancer.
Each judge can award 1, 2, 3, 4 or 5 marks.

The four judges' median mark, m , is put into the formula

$S = 10m - 5$

to get the dancer's score, S .

Reece gets a score of 10.
Reece says

The judges must have awarded marks of 1, 1, 2 and 2
because the median is 1.5
and $1.5 \times 10 - 5 = 10$.

Why is Reece not correct?
Show working to support your reason.

.....
.....
..... [2]

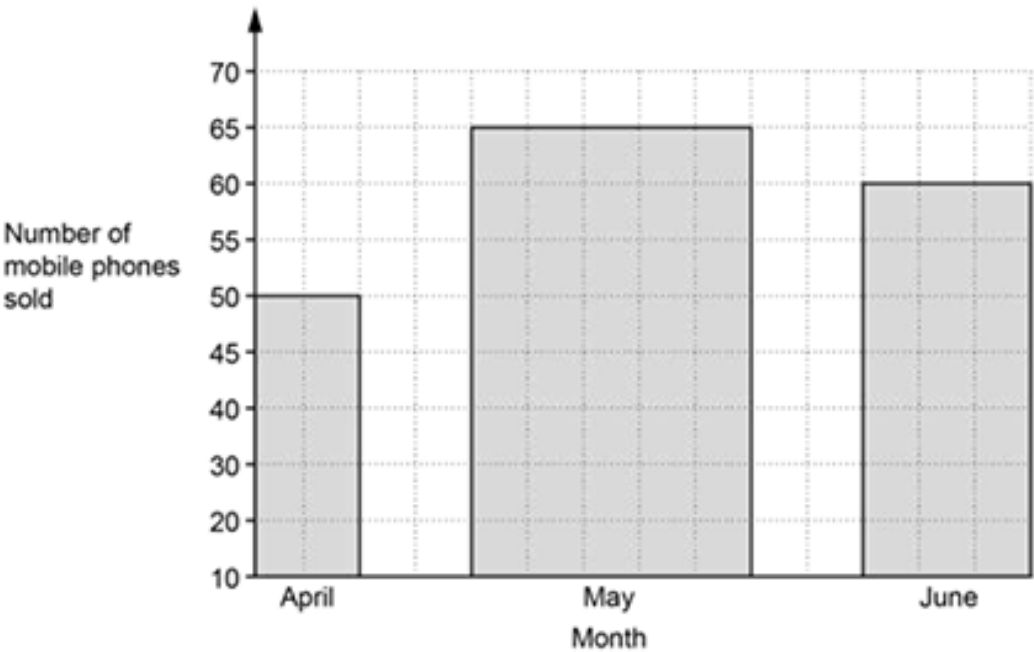
28. Here is a list of numbers.

9 6 7 3 4 12 9

Work out the range.

..... [2]

29. This graph shows the number of mobile phones sold by a shop in April, May and June.



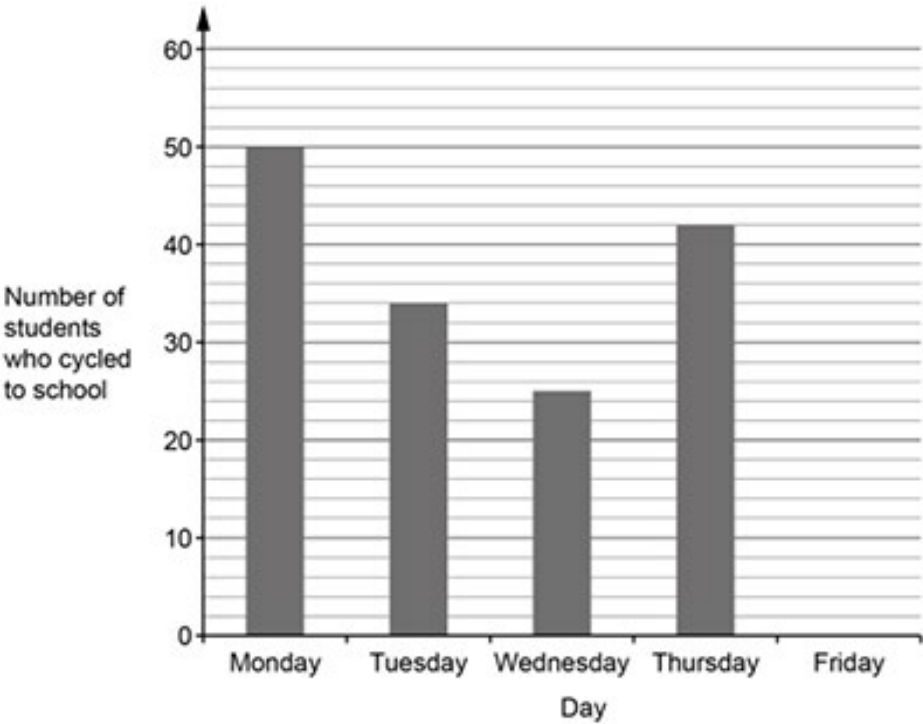
Give **two** reasons why the graph is misleading.

1

2

[2]

30(a). Ellis has collected data on the number of students who cycled to school last week. The bar chart shows the results for the first four days.



On Friday there were 46 students who cycled to school.

Show this information on the bar chart.

[1]

(b). Ellis says

On Wednesday 125% of the students cycled to my school.

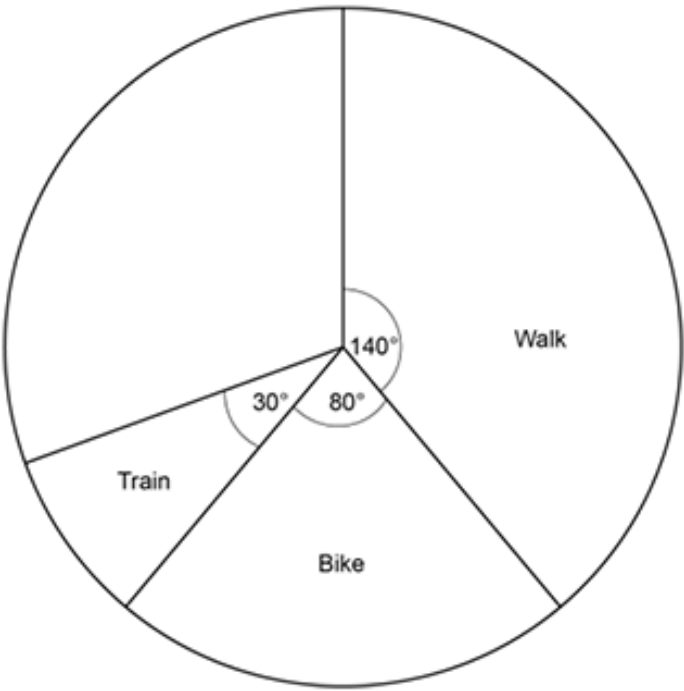
Could this be true?
Explain how you decide.

[1]

(c). There are 700 students in Ellis’s school.
Find the percentage of students who cycled to Ellis’s school on Thursday.

..... % [3]

31(a). Some students were asked how they travel to school.
Each student gave one answer.
The pie chart shows the proportion who walk, or travel by bike, or train.



All of the remaining students travel to school either by bus or by car.
The ratio of the number who travel by bus to the number who travel by car is 3 : 2.

Complete the pie chart.
You must show your working.

[6]

(b). Which way of travelling to school is the mode? [1]

32(a). A journalist is going to do a survey to find out whether people aged 50 or less spend less time watching television than people aged more than 50.

The journalist says their sample will be the first 20 people to go into a particular park after 9 am next Monday.

Give **one** reason why the journalist’s sample is unlikely to give reliable information.

..... [1]

(b). Make **three** suggestions to help the journalist obtain a sample that may give more reliable information.

1

2

3

[3]

33(a). Here is a list of numbers.

6 8 2 3 8 3

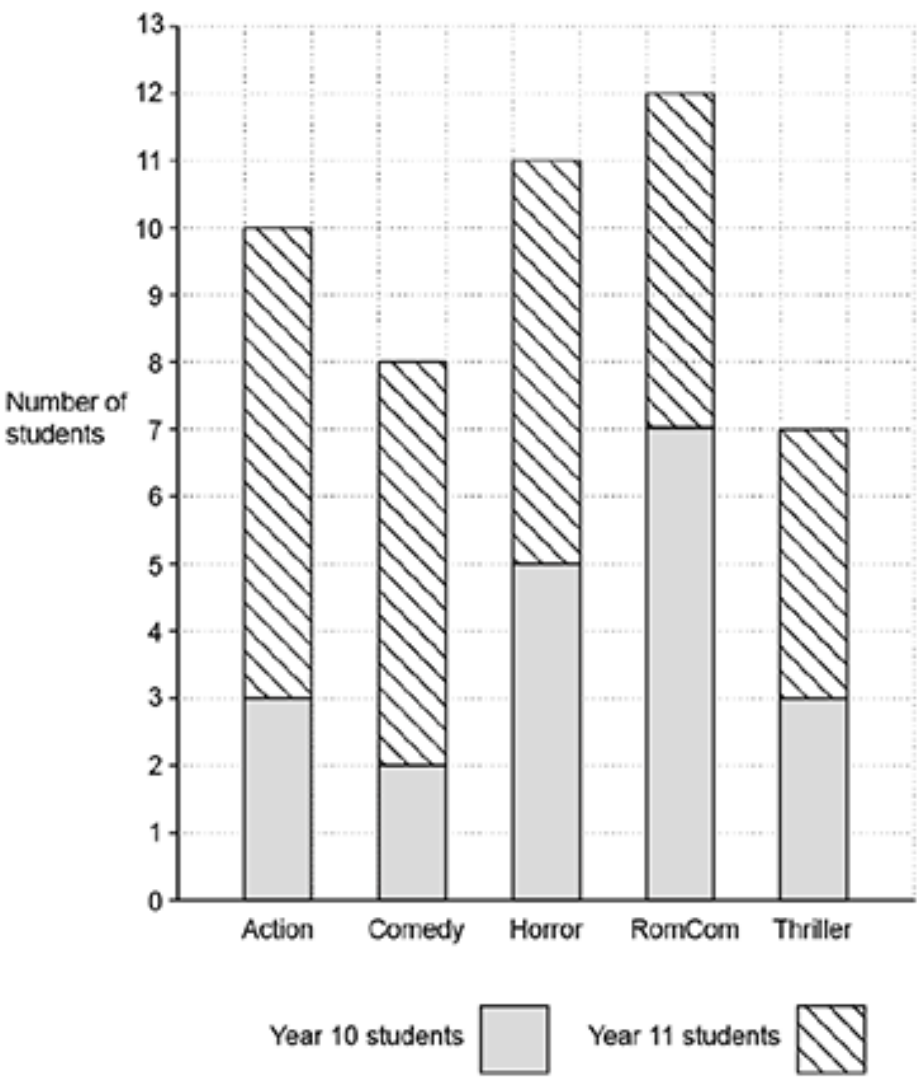
Work out the range of the numbers.

..... [2]

(b). Work out the mean of the numbers.

..... [2]

34(a). In a survey, some students chose their favourite type of film from a list of five. The bar chart shows the results.



i. How many students chose Horror films?

..... [1]

ii. How many Year 11 students chose Horror films?

..... [1]

(b). What type of film was chosen by the least Year 10 students?

..... [1]

(c). How many students took part in the survey?

..... [2]

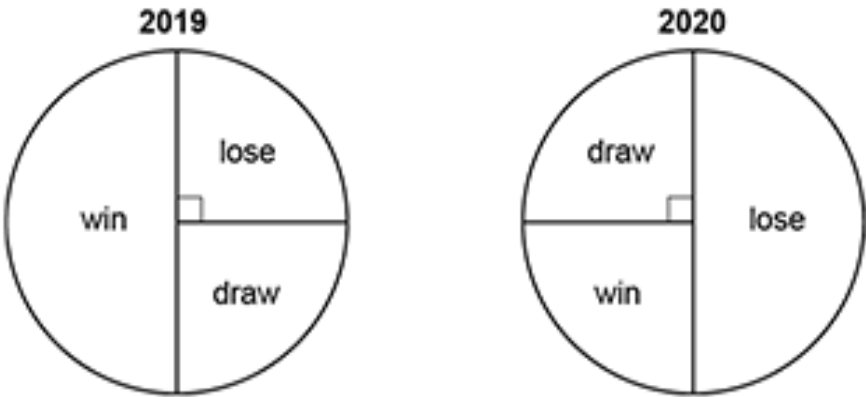
(d). 20 Year 10 students took part in the survey.

Write the ratio

number of Year 10 students taking part : number of Year 11 students taking part
in its simplest form.

..... : [3]

35(a). A sports team played the same number of matches in 2019 and 2020.
The two pie charts summarise their results.



What fraction of the matches did the team win in 2019?

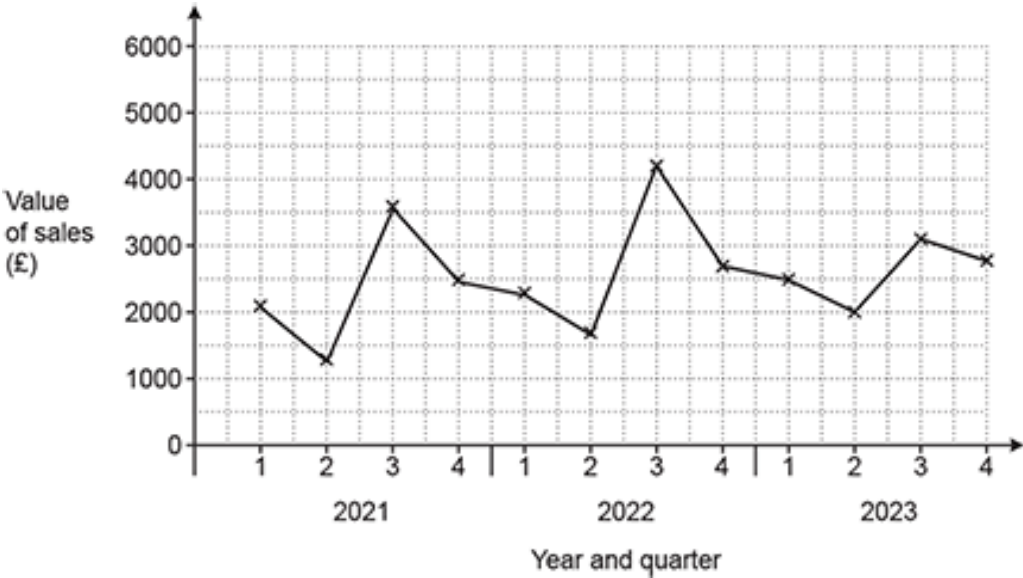
..... [1]

(b). Did the team’s results improve in 2020?
Explain how you know.

_____ because _____

[1]

36(a). The graph shows the value of sunscreen products sold in a shop for each quarter from quarter 1 of 2021 to quarter 4 of 2023.



In one of these years, quarter 3 was very cloudy.
Write down which year this is most likely to be.
Give a reason for your answer.

Year _____ because _____

[1]

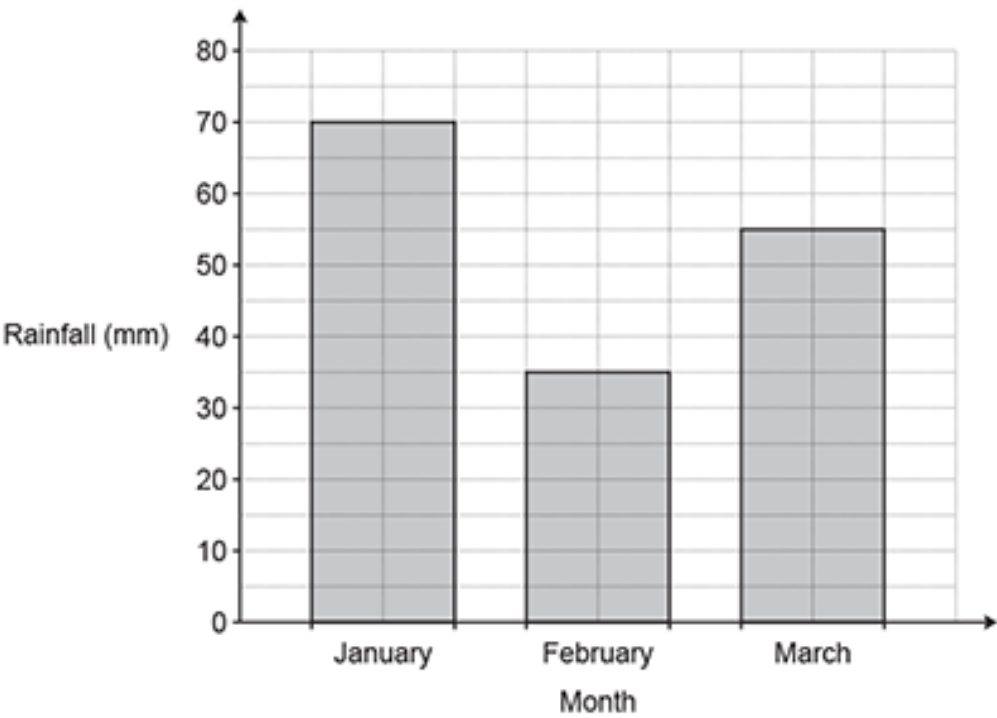
(b). The manager of the shop says that the value of sales in quarter 4 of 2024 will be £3100.
What assumption has the manager made?

_____ [1]

(c). Make **one** comment about the **annual** variation shown in this graph.

_____ [1]

37(a). The bar chart shows the rainfall, in millimetres (mm), for a city in the first three months of the year.



Write down the amount of rainfall in February.

..... mm **[1]**

(b). Write in its simplest form the ratio
amount of rainfall in February : amount of rainfall in March.

..... : **[2]**

(c). The total amount of rainfall in January and February was the same as the total amount of rainfall in March and April.

Work out the amount of rainfall in April.

..... mm **[3]**

38. Three adults, Amos, Beth and Charlie, are comparing their age in years.

Amos is 32.
Beth is 48.
The mean age of Amos, Beth and Charlie is 50.

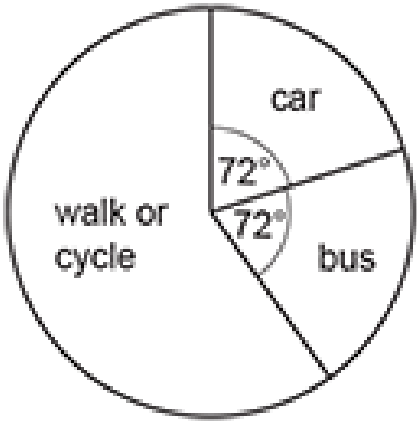
Work out the age of Charlie.

..... **[3]**

39(a). A school has 540 students.

This pie chart shows the way that all 540 students travel to the school.

Each student either walked or cycled or travelled by bus or travelled by car.



Work out how many of the 540 students travel to the school by car.

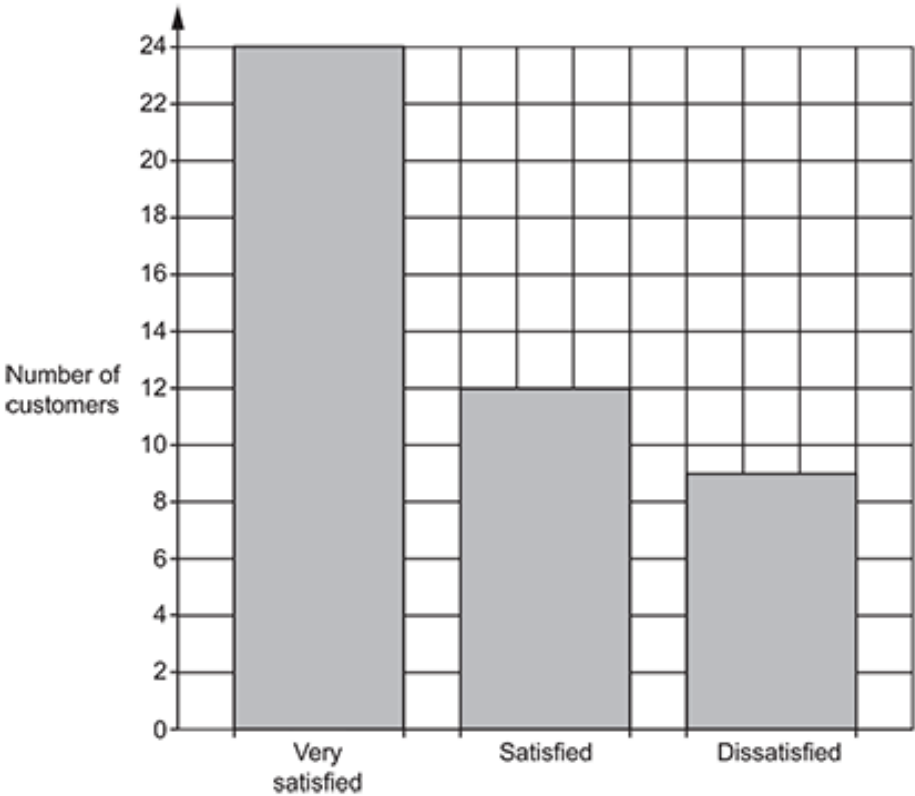
..... **[3]**

(b). The number of students who walk is three times the number who cycle.

Work out the sector angle for the students who walk to school.
You do **not** need to draw this on the pie chart.

..... ° [3]

40(a). A store carries out a satisfaction survey on a sample of its customers.
The bar chart shows the results.

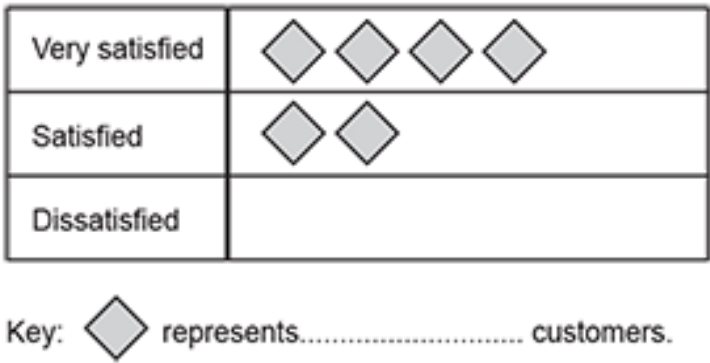


Work out how many customers were in the sample.

..... [2]

(b). The store manager decides to display the results in a pictogram.

Complete the final row of the pictogram and the key.



[2]

41. Kai has four differently numbered cards.

- The range of the numbers is 14.
- The median of the numbers is 9.
- All the numbers are prime numbers.
- The lowest number is 5.

Work out the numbers on the cards.
Write the numbers in order of size.

42(a). The pictogram shows the number of students absent from a school in a particular week.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Key:  represents 4 students

Harper says

The pictogram shows 2 circles for Monday.
Therefore 2 students were absent on Monday.

Explain what Harper has done wrong.
Write down the correct number of students who were absent on Monday.

Harper has _____

Correct number **[2]**

(b). 5 students were absent on Friday.

Complete the pictogram above to show this information.

[1]

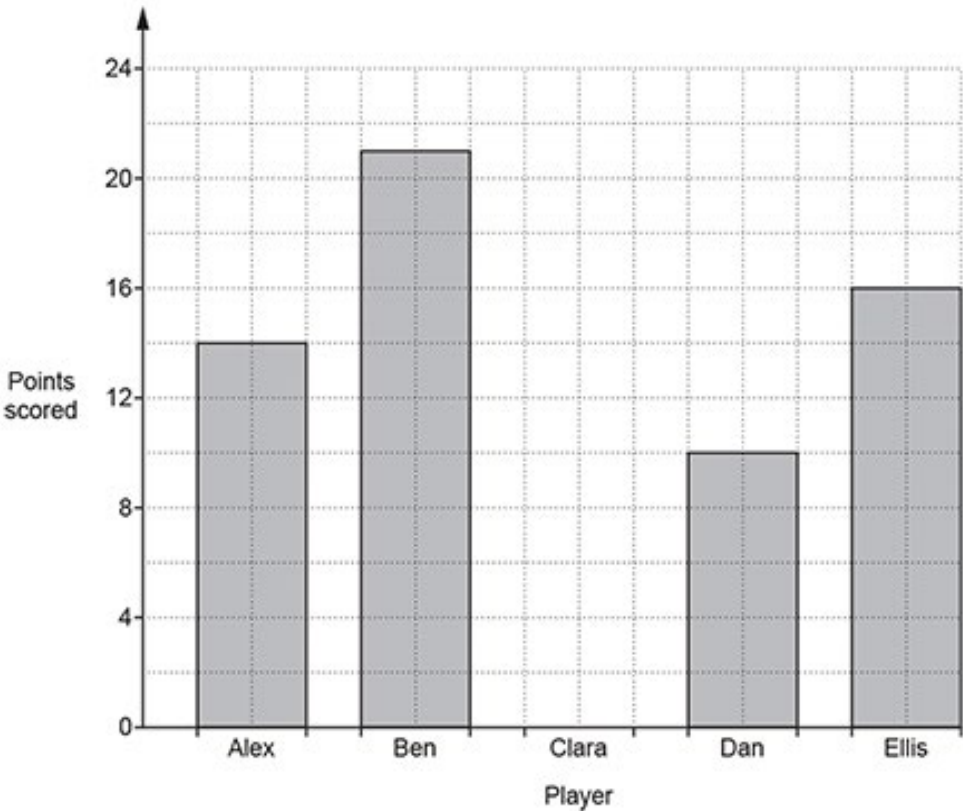
43. At the end of each day, a driver works out the mean distance they have driven so far that week.

At the end of 5 days, the mean distance they have driven is 185.5 miles per day.
At the end of 6 days, the mean distance they have driven is 190 miles per day.

Work out how many miles the driver drove on the sixth day of that week.

..... miles [4]

44(a). The bar chart shows the number of points scored by some quiz players.



How many points were scored by Ellis?

..... [1]

(b). How many more points were scored by Alex than Dan?

..... [1]

(c). Clara scored 13 points.

Complete the bar chart to show this information.

[1]

45. This list represents four numbers.

127 x $x + 1$ $2x$

The **mean** of the four numbers is 180.

Work out the numbers.
You must show your working.

127
..... [5]

46(a). Here is a list of numbers.

6 9 2 12 3 8 3

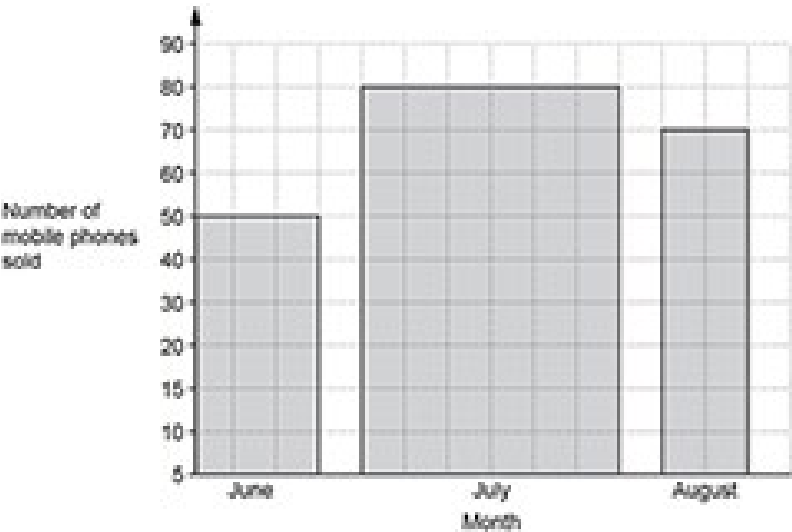
Write down the mode.

..... [1]

(b). Work out the range.

..... [2]

47. This graph shows the number of mobile phones sold by a shop in June, July and August.



Give **two** reasons why the graph is misleading.

- 1
-
-
- 2
-
-

[2]

48(a). In a dance competition, four judges award marks to each dancer. Each judge can award 1, 2, 3, 4 or 5 marks.

The four judges' median mark, m , is put into the formula

$S = 10m - 5$

to get the dancer's score, S .

Sam is awarded marks of 4, 3, 1 and 4.
Work out Sam's score.

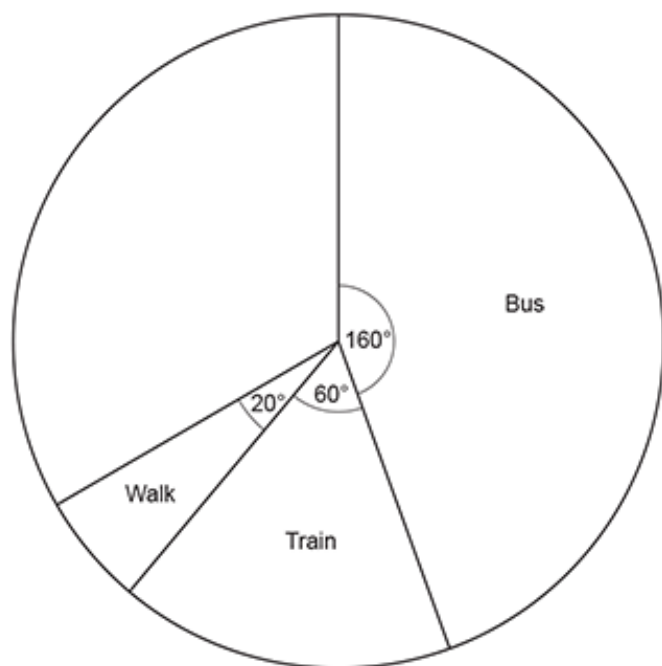
..... [3]

The judges must have awarded marks of 4, 4, 5 and 5 because the median is 4.5 and $4.5 \times 10 - 5 = 40$.

Why is Taylor not correct?
Show working to support your reason.

[2]

49(a). Some students were asked how they travel to school.
Each student gave one answer.
The pie chart shows the proportion who travel by bus, by train or walk.



All of the remaining students travel to school either by bike or by car.
The ratio of the number who travel by bike to the number who travel by car is 2 : 3.

Complete the pie chart.

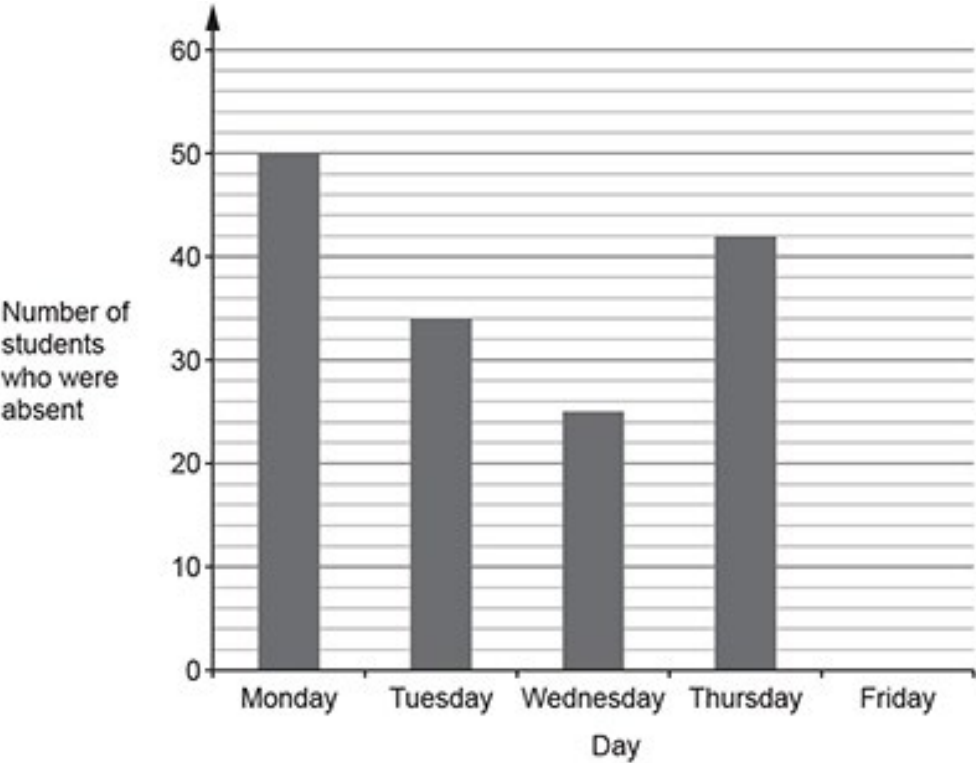
You must show your working.

[6]

(b). Which way of travelling to school is the mode?

..... [1]

50(a). Taylor has collected data on the number of students who were absent from their school last week. The bar chart shows the results for the first four days.



On Friday there were 54 students who were absent from the school.

Show this information on the bar chart.

[1]

(b). Taylor says

On Monday 150% of the students were absent from my school.

Could this be true?

Explain how you decide.

.....

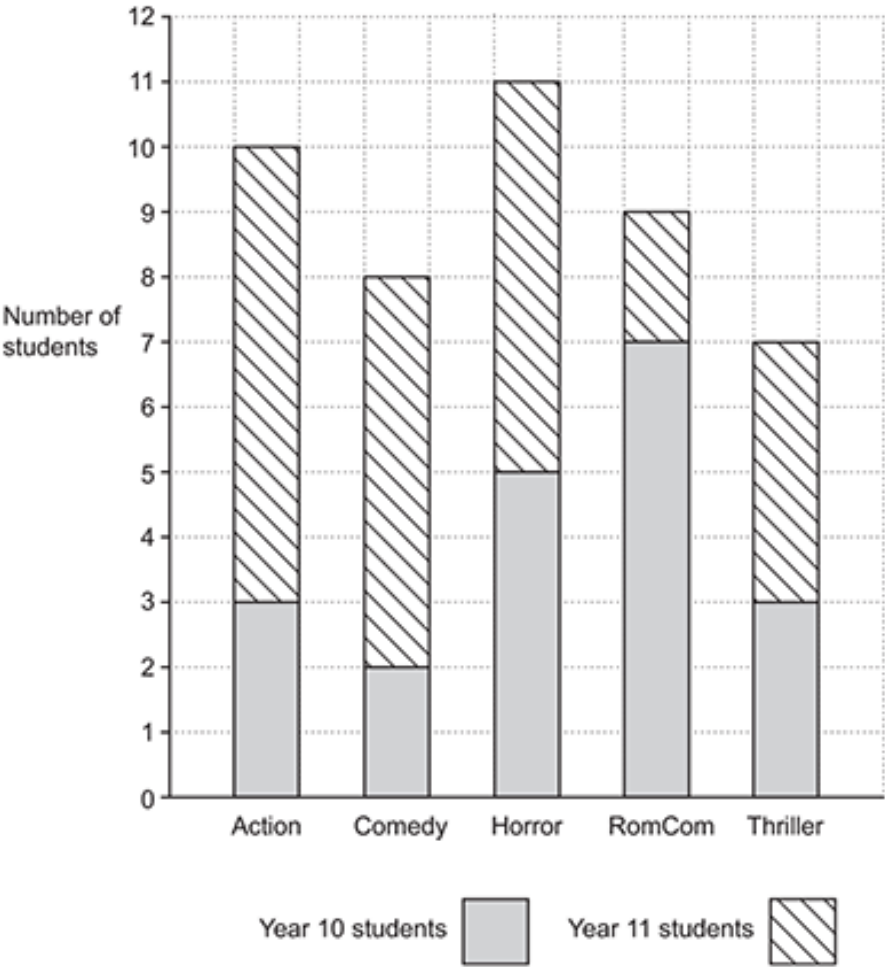
.....

..... [1]

(c). There are 600 students in Taylor’s school.
Find the percentage of students who were absent from Taylor’s school on Thursday.

..... % **[3]**

51(a). In a survey, some students chose their favourite type of film from a list of five.
The bar chart shows the results.



i. How many students chose Action films?

(i) **[1]**

ii. How many Year 11 students chose Action films?

(ii) [1]

(b). What type of film was chosen by the most Year 10 students?

..... [1]

(c). How many Year 10 students took part in the survey?

..... [2]

(d). 45 students took part in the survey.

Write the ratio

number of Year 10 students taking part : number of Year 11 students taking part

in its simplest form.

..... : [3]

52(a). A sports team played the same number of matches in 2019 and 2020.
The two pie charts summarise their results.



What fraction of the matches did the team win in 2019?

..... [1]

(b). Did the team’s results improve in 2020?
Explain how you know.

_____ because _____
..... [1]

53(a). Here is a list of numbers.
6 9 2 3 9 1

Work out the range of the numbers.

..... [2]

(b). Work out the mean of the numbers.

..... [2]

Give **one** reason why the journalist's sample is unlikely to give reliable information.

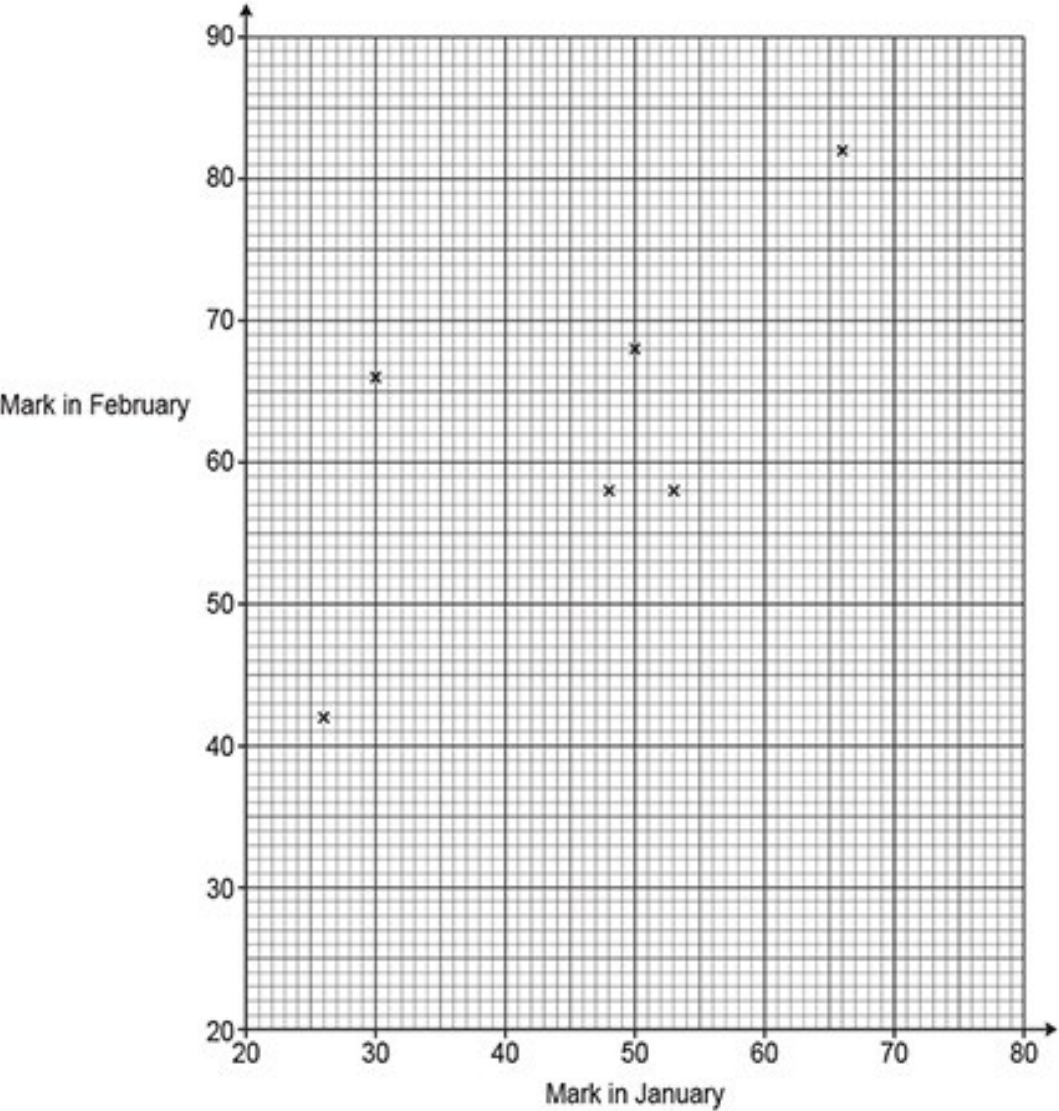
[1]

[3]

55(a). The table shows the marks obtained by 10 students in spelling tests in January and February.

Mark in January	26	53	50	48	30	66	70	44	37	38
Mark in February	42	58	68	58	66	82	86	60	48	50

The marks for the first six students are plotted on the scatter diagram.



Plot the marks for the remaining four students.

(b). Describe the type of correlation shown in the completed scatter diagram.

[1]

(c).

- i. On the scatter diagram, **circle** the student that made the greatest improvement in their marks from January to February.

[1]

- ii. Work out the percentage change in this student's marks from January to February.

(ii)% **[3]**

(d). Another student, Kai, scored 79 marks in the test in January but was absent for the test in February.

Kai says

I could use a line of best fit on the scatter diagram to estimate the marks I may have achieved in the test in February.

Is Kai's method reliable?

Give a reason for your answer.

[1]

END OF QUESTION PAPER