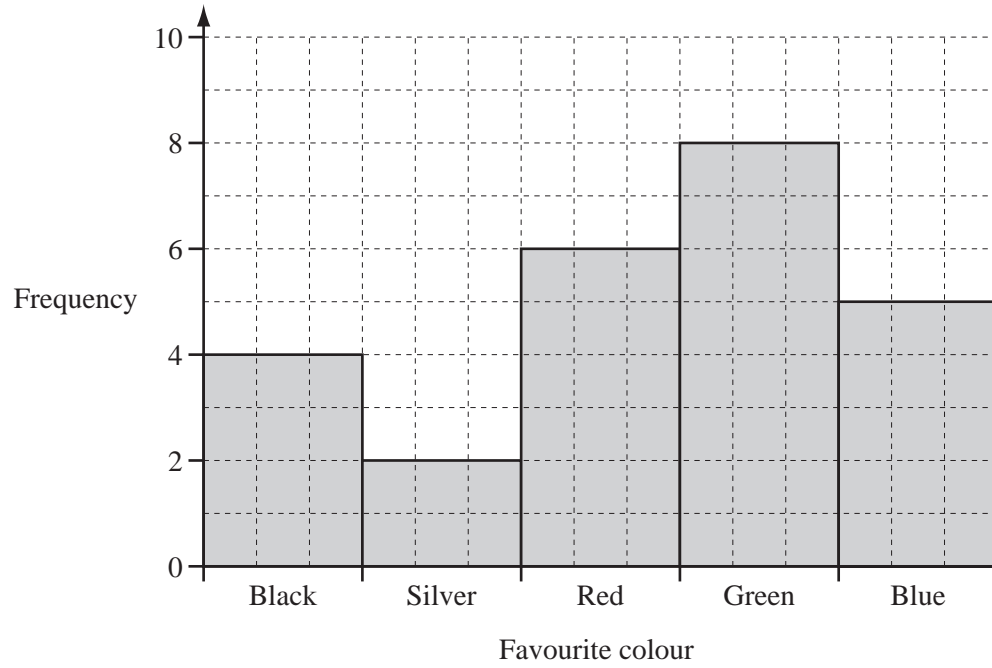


1



The bar chart shows the favourite colours of students in a class.

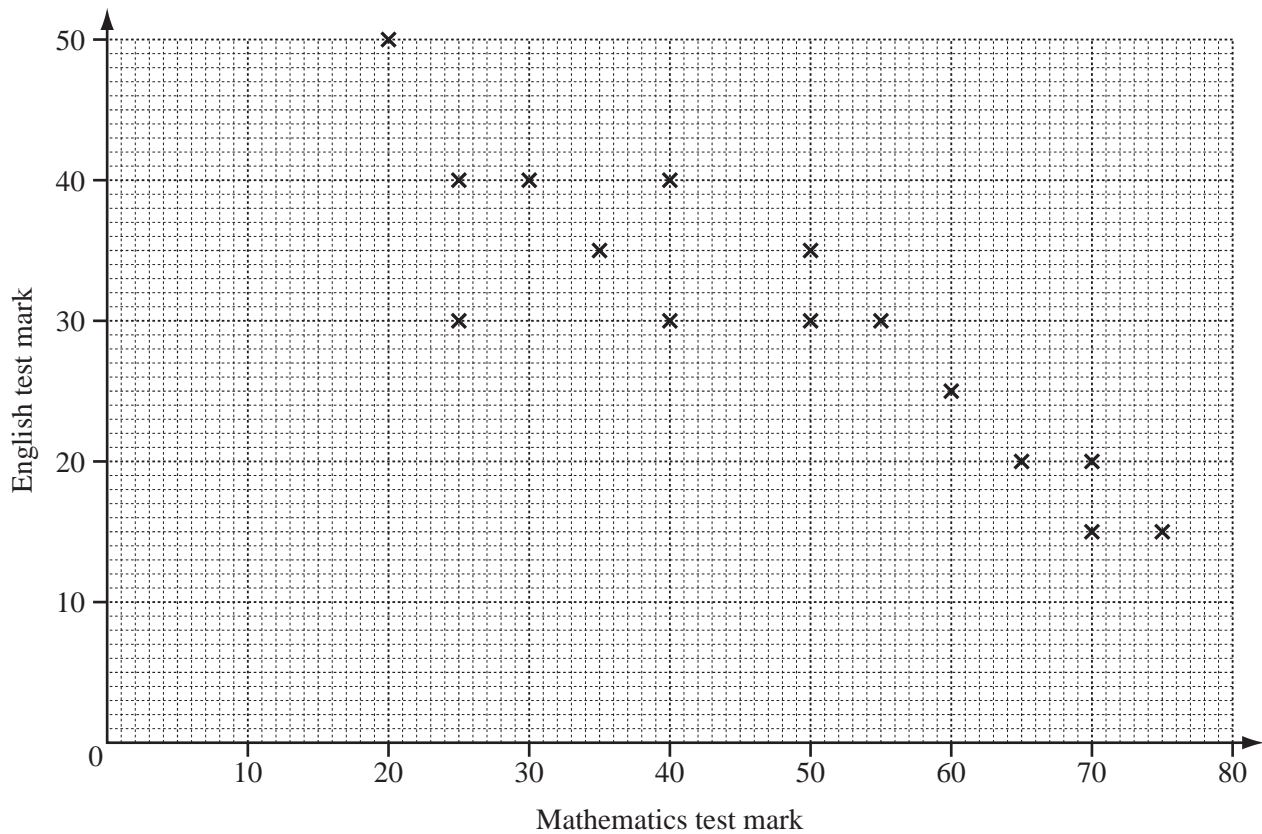
(a) How many students are in the class?

Answer(a) [1]

(b) Write down the modal colour.

Answer(b) [1]

2



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]

- 3 A bag contains only red, yellow and blue counters. Bashira picks a counter at random from the bag, records its colour, and puts it back in the bag. She does this 60 times.

(a) Complete the table for her results.

Colour	Frequency	Relative frequency
Red	19	
Yellow		
Blue	28	

[2]

(b) Gita picks a counter at random from the same bag.

Which colour counter is she most likely to pick?

Answer(b) [1]

- 4 In a survey of 60 cars, the type of fuel that they use is recorded in the table below.

Each car only uses one type of fuel.

Petrol	Diesel	Liquid Hydrogen	Electricity
40	12	2	6

- (a) Write down the mode.

Answer(a) [1]

- (b) Olav drew a pie chart to illustrate these figures.

Calculate the angle of the sector for Diesel.

Answer(b) [2]

- (c) Calculate the probability that a car chosen at random uses Electricity.

Write your answer as a fraction in its simplest form.

Answer(c) [2]

5 36 29 41 45 15 10 13

Use the numbers in the list above to answer all the following questions.

(a) Write down

(i) two even numbers,

Answer(a)(i) , [1]

(ii) two prime numbers,

Answer(a)(ii) , [2]

(iii) a square number,

Answer(a)(iii) [1]

(iv) two factors of 90.

Answer(a)(iv) , [2]

(b) (i) Calculate the mean of the seven numbers.

Answer(b)(i) [2]

(ii) Find the median.

Answer(b)(ii) [2]

(iii) Find the range.

Answer(b)(iii) [1]

(c) A number from the list is chosen at random.

Find the probability that the number is

(i) even,

Answer(c)(i) [1]

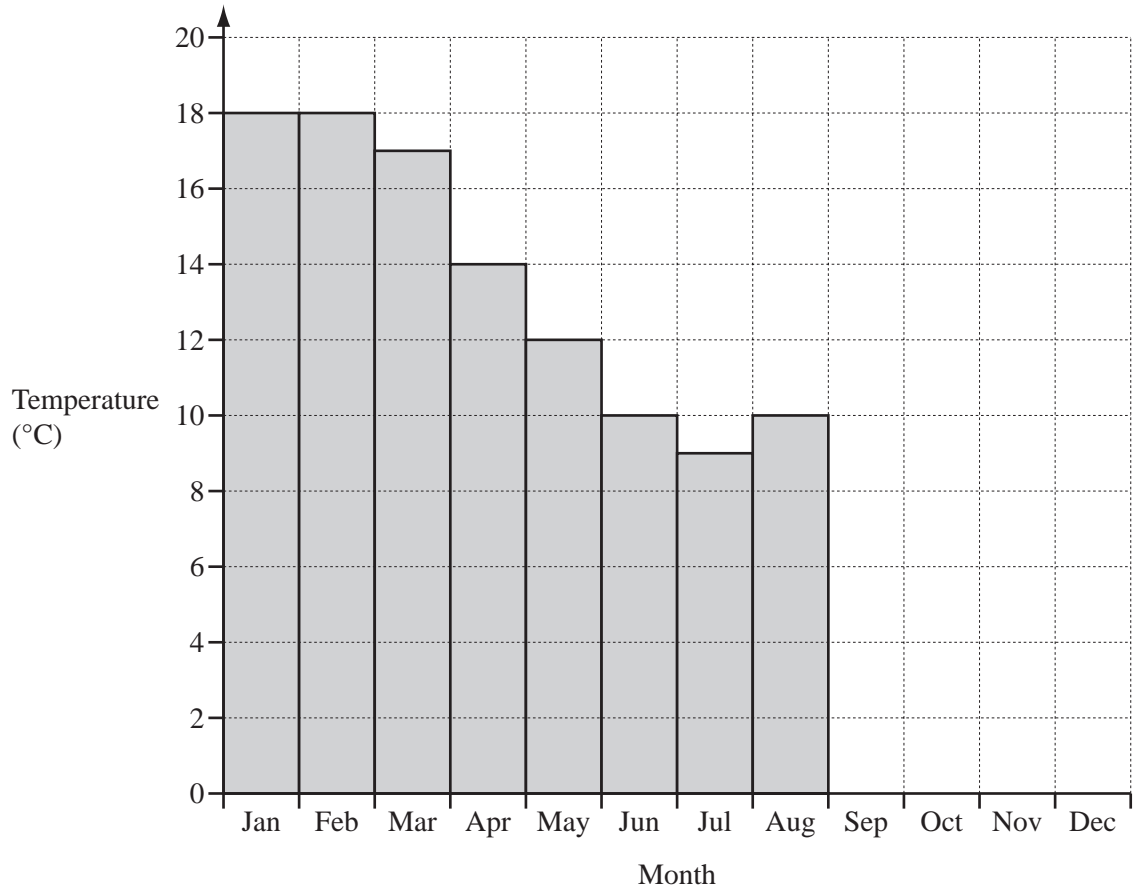
(ii) a multiple of 5.

Answer(c)(ii) [1]

- 6 The table shows the average temperature and rainfall each month at Wellington airport.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°C)	18	18	17	14	12	10	9	10	11	13	15	16
Rainfall (mm)	67	48	76	87	99	113	111	106	82	81	74	74

- (a) Complete the bar chart to show the **temperature** each month.



[2]

- (b) For the **rainfall** calculate

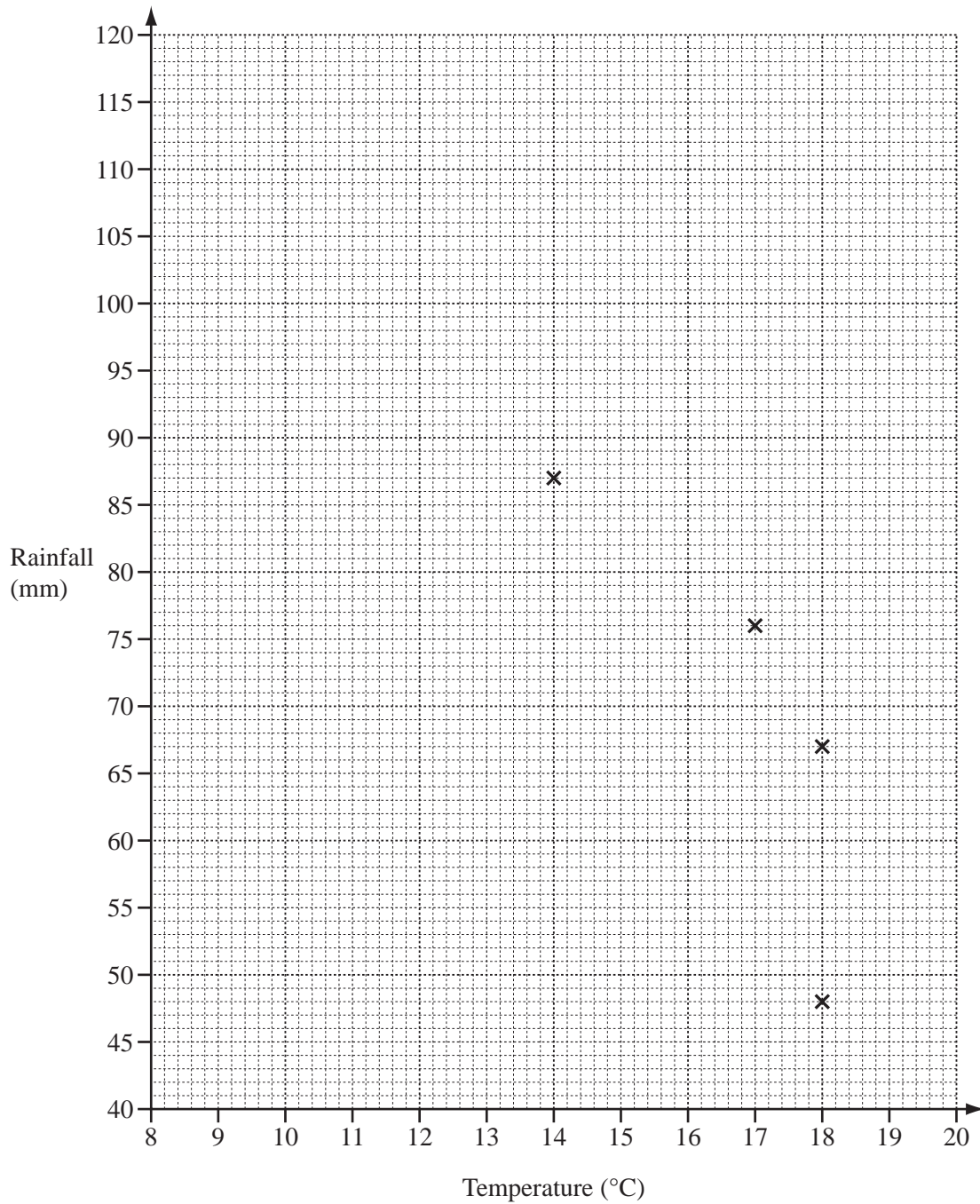
- (i) the mean,

Answer(b)(i) mm [2]

- (ii) the median.

Answer(b)(ii) mm [2]

(c) In the scatter diagram the rainfall for January to April is plotted against temperature.



- (i) Complete the scatter diagram by plotting the values for the months May to December. [3]
- (ii) Draw the line of best fit on the scatter diagram. [1]
- (iii) What type of correlation does the scatter diagram show?

Answer(c)(iii) [1]

- 7 James takes 12 science tests during one school term.
These are his marks.

18 11 20 15 15 12 15 9 11 15 14 13

(a) Find

(i) the range,

Answer(a)(i) [1]

(ii) the mode,

Answer(a)(ii) [1]

(iii) the median,

Answer(a)(iii) [2]

(iv) the mean.

Answer(a)(iv) [2]

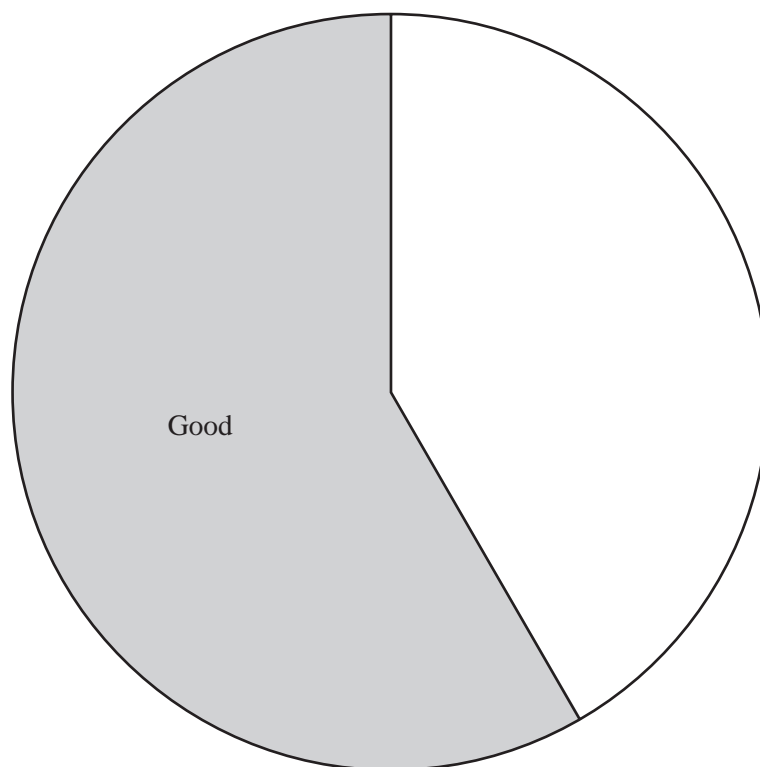
- (b) James sorts his marks into three levels.
The levels are Satisfactory (less than 12), Good (12 to 16) and Excellent (more than 16).

(i) Complete the frequency table to show this information.

Level	Satisfactory	Good	Excellent
Frequency		7	

[1]

(ii) Complete the pie chart accurately and label each sector.

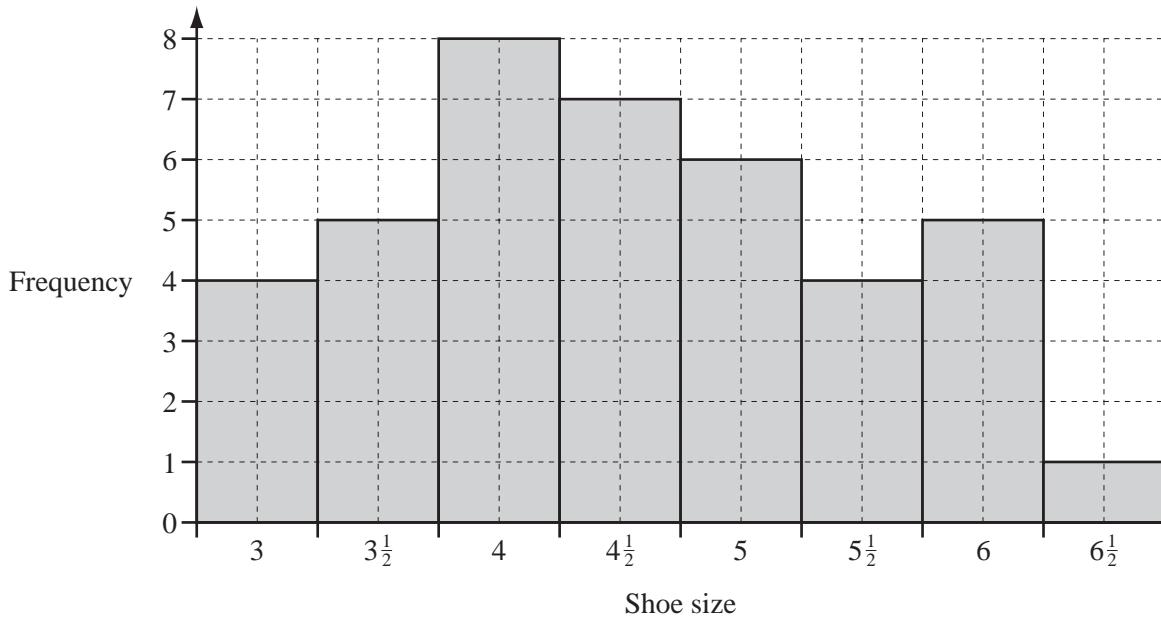


[2]

- (c) What fraction of the marks were Satisfactory or Good?
Give your answer in its lowest terms.

Answer(c) [2]

8



The bar chart shows the frequencies of the shoe sizes for a group of students.

(a) Use the information in the bar chart to complete the frequency table.

Shoe size	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$
Frequency	4							1

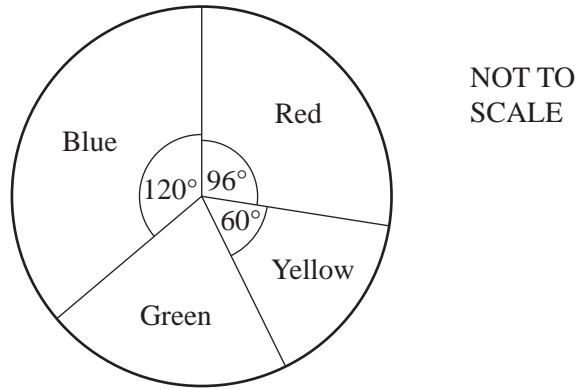
[2]

(b) How many students are in the group?

Answer(b) [1]

(c) Calculate the mean shoe size.

Answer(c) [3]



In a survey a number of people chose their favourite colour.

The results are shown in the pie chart.

(a) Calculate the size of the sector angle for green.

Answer(a) [1]

(b) The number of people who chose red is 16.

Calculate the number who chose yellow.

Answer(b) [1]

(c) Calculate the total number of people in the survey.

Answer(c) [1]

(d) Write down the fraction who chose red.

Answer(d) [1]

10 At a ski resort the temperature, in $^{\circ}\text{C}$, was measured every 4 hours during one day.

The results were -12° , -13° , -10° , 4° , 4° , -6° .

(a) Find the difference between the highest and the lowest of these temperatures.

Answer(a) $^{\circ}\text{C}$ [1]

(b) Find

(i) the mean,

Answer(b)(i) $^{\circ}\text{C}$ [2]

(ii) the median,

Answer(b)(ii) $^{\circ}\text{C}$ [2]

(iii) the mode.

Answer(b)(iii) $^{\circ}\text{C}$ [1]

- 11** 30 students took a vocabulary test.
The marks they scored are shown below.

7	8	5	8	3	2
6	6	3	3	6	2
7	1	5	10	2	6
6	5	8	1	2	7
3	1	5	3	10	3

- (a)** Complete the frequency table below.

The first five frequencies have been completed for you.
You may use the tally column to help you.

Mark	Tally	Frequency
1		3
2		4
3		6
4		0
5		4
6		
7		
8		
9		
10		

[3]

(b) (i) Find the range.

Answer(b)(i) [1]

(ii) Write down the mode.

Answer(b)(ii) [1]

(iii) Find the median.

Answer(b)(iii) [2]

(iv) Calculate the mean.

Answer(b)(iv) [3]

(c) A student is chosen at random.

Find the probability that the student scored

(i) 1 mark,

Answer(c)(i) [1]

(ii) 4 marks,

Answer(c)(ii) [1]

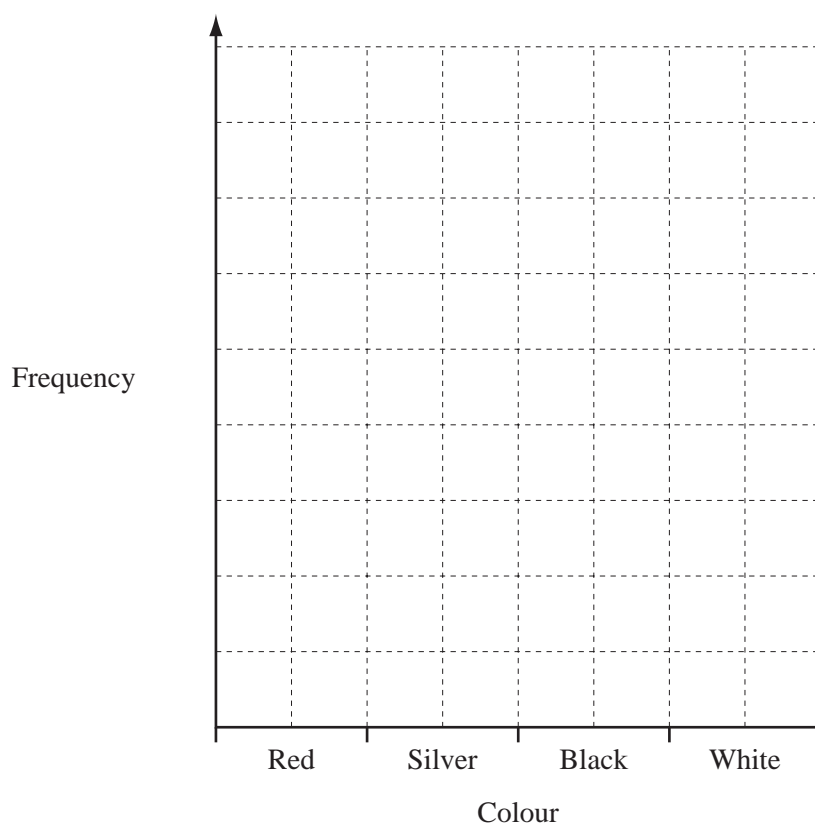
(iii) fewer than 6 marks.

Answer(c)(iii) [1]

- 12 The colours of 30 cars in a car park are shown in the frequency table.

Colour	Frequency
Red	5
Silver	15
Black	6
White	4

- (a) Complete the bar chart to represent this information.



[3]

- (b) Write down the mode.

Answer(b) [1]

13 The number of ice-creams sold in a shop each month is shown in the table.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number of ice-creams sold	1300	1200	1700	1800	2300	2500	2800	2600	1500	1600	1100	1900

(a) (i) Find the range.

Answer(a)(i) [1]

(ii) Calculate the mean.

Answer(a)(ii) [2]

(iii) Find the median.

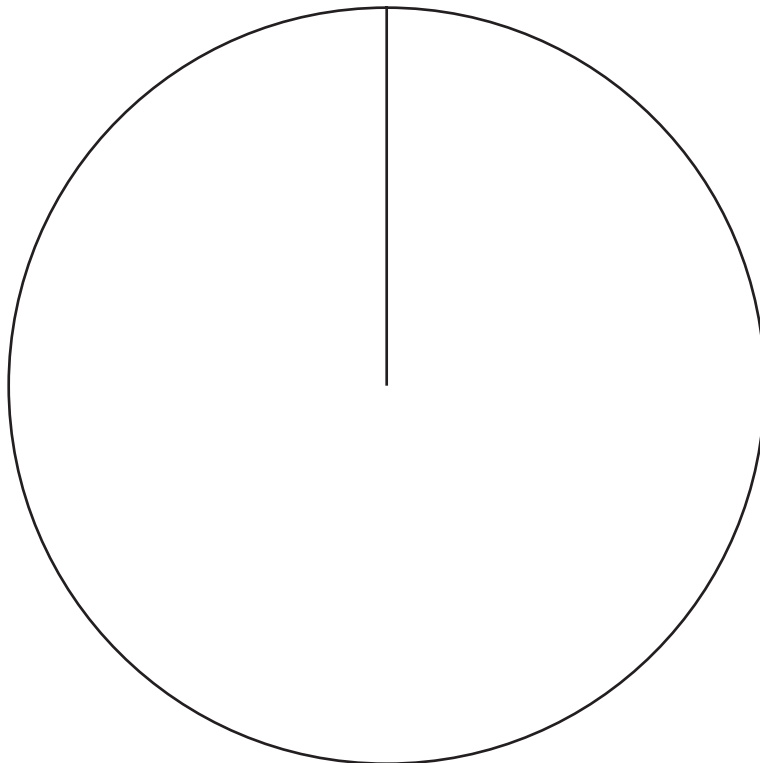
Answer(a)(iii) [2]

(b) The numbers of chocolate, strawberry and vanilla ice-creams sold are shown in the table.

Flavour	Number of ice-creams	Pie chart sector angle
Chocolate	4200	140°
Strawberry	3600	
Vanilla	3000	

(i) Complete the table by working out the sector angles for strawberry and vanilla. [3]

(ii) Complete the pie chart below and label the sectors.

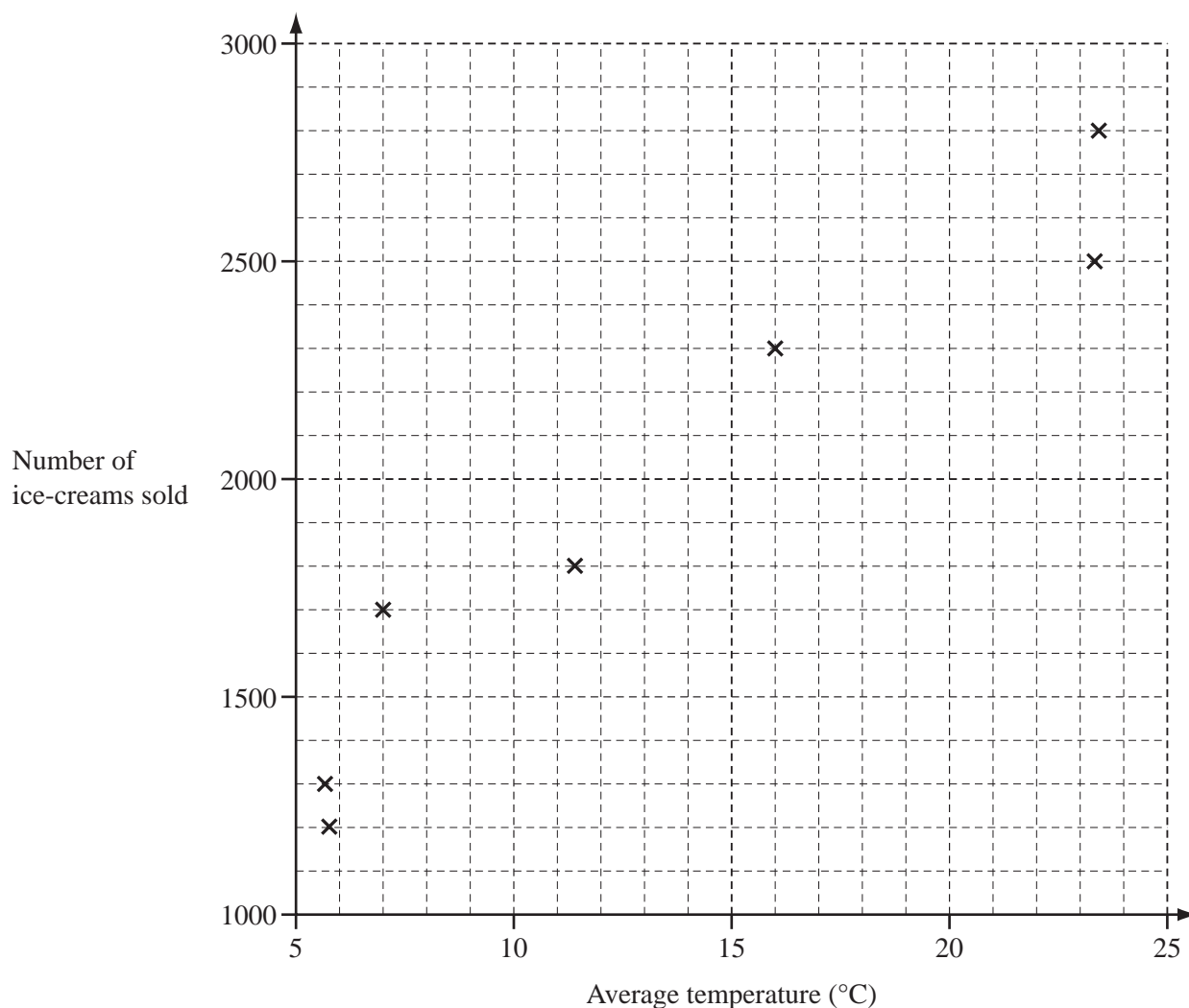


[2]

(c) The table shows the average temperature and the number of ice-creams sold each month.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°C)	5.6	5.7	7.0	11.4	16.0	23.3	23.4	20.0	15.5	11.5	8.0	14.0
Number of ice-creams sold	1300	1200	1700	1800	2300	2500	2800	2600	1500	1600	1100	1900

- (i) Complete the scatter diagram for the months August to December. The points for January to July are plotted for you.



- (ii) What type of correlation does the scatter diagram show? [2]

Answer(c)(ii) [1]

- (iii) Write down a statement connecting the number of ice-creams sold to the average monthly temperature.

Answer(c)(iii) [1]

- (b) (i) Draw the line of symmetry of the graph. [1]
- (ii) Write down the equation of the line of symmetry.

Answer(b)(ii) [1]

- (c) Two points, A and B , are marked on the grid.

- (i) Draw the straight line through the points A and B extending it to the edges of the grid. [1]
- (ii) Write down the co-ordinates of the points of intersection of this line with $y = x^2 + x - 3$.

Answer(c)(ii) (..... ,) and (..... ,) [2]

- (iii) Work out the gradient of the straight line through points A and B .

Answer(c)(iii) [2]

- (iv) Write down the equation of the straight line through points A and B , in the form $y = mx + c$.

Answer(c)(iv) $y =$ [2]

21

0 0 0 1 2 2 4 4 5 9

The list shows the number of days absent in a school term for each of 10 students.

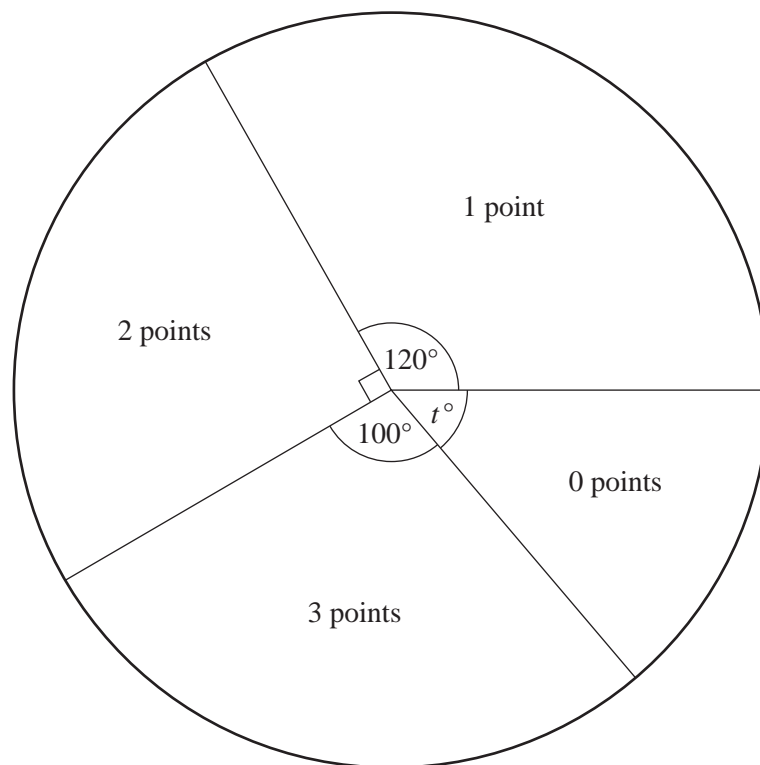
Find the mode, the median and the mean for the number of days absent.

Answer Mode =

Median =

Mean = [4]

- 14** 288 students took part in a quiz.
 There were three questions in the quiz.
 Each correct answer scored 1 point.
 The pie chart shows the results.



- (a)** Find the value of t .

Answer(a) $t =$ [1]

- (b)** Find the number of students who scored 2 points.

Answer(b) [2]

- (c)** Find the modal number of points.

Answer(c) [1]

- (d) (i) Use the information in the pie chart to complete the frequency table for the 288 students.

Number of points	0	1	2	3
Number of students				

[2]

- (ii) Calculate the mean number of points.

Answer(d)(ii) [3]

- (e) One student is chosen at random.

Find the probability that this student scored

- (i) 3 points,

Answer(e)(i) [1]

- (ii) at least 1 point,

Answer(e)(ii) [2]

- (iii) more than 3 points.

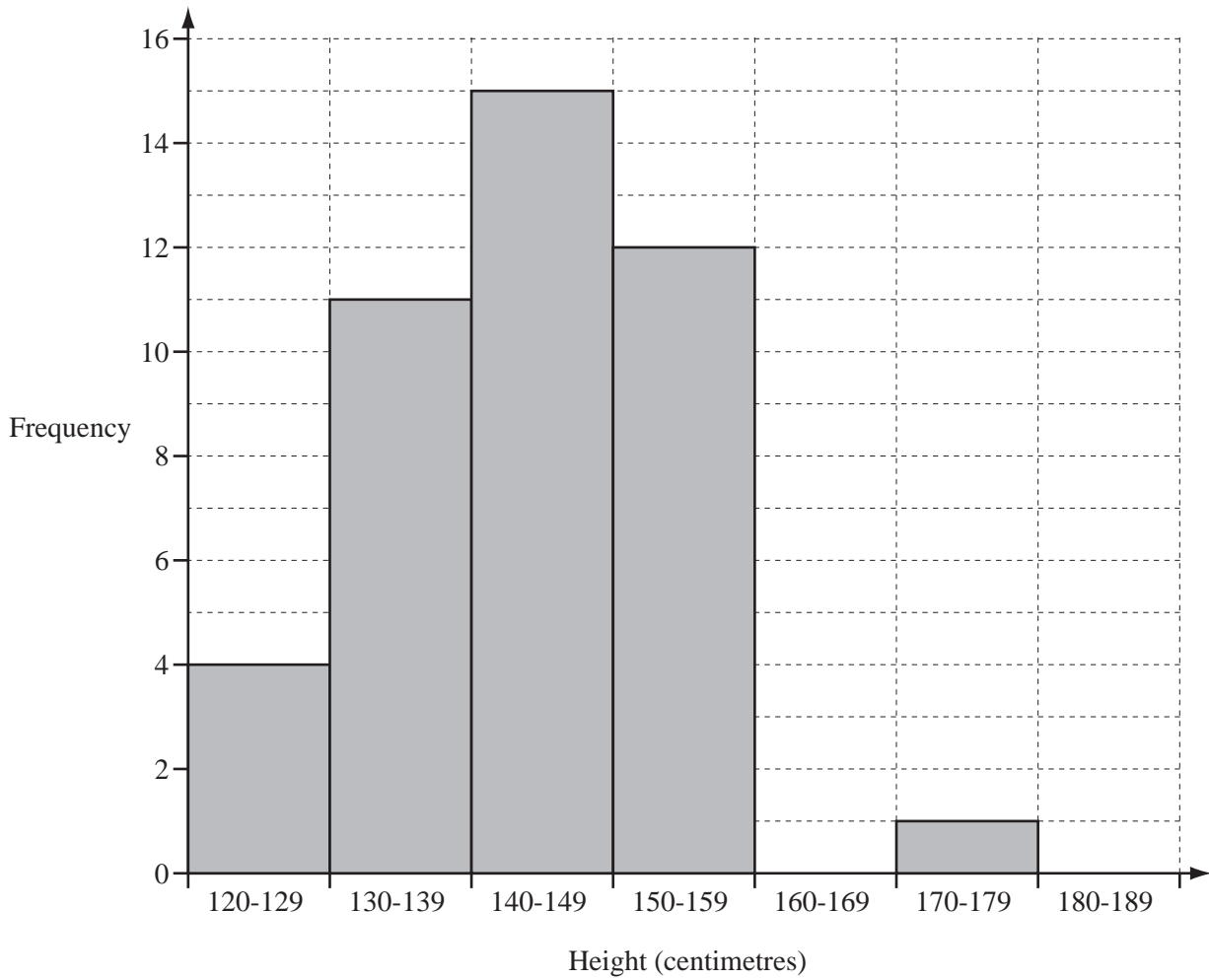
Answer(e)(iii) [1]

- (f) 1440 students took part in the same quiz.

How many students would be expected to score 3 points?

Answer(f) [1]

- 15 The heights of 43 children are measured to the nearest centimetre. Braima draws a bar chart from this information.



A child is chosen at random.

Write down, as a fraction, the probability that the child will be

- (a) in the group 140 – 149 cm,

Answer(a) [1]

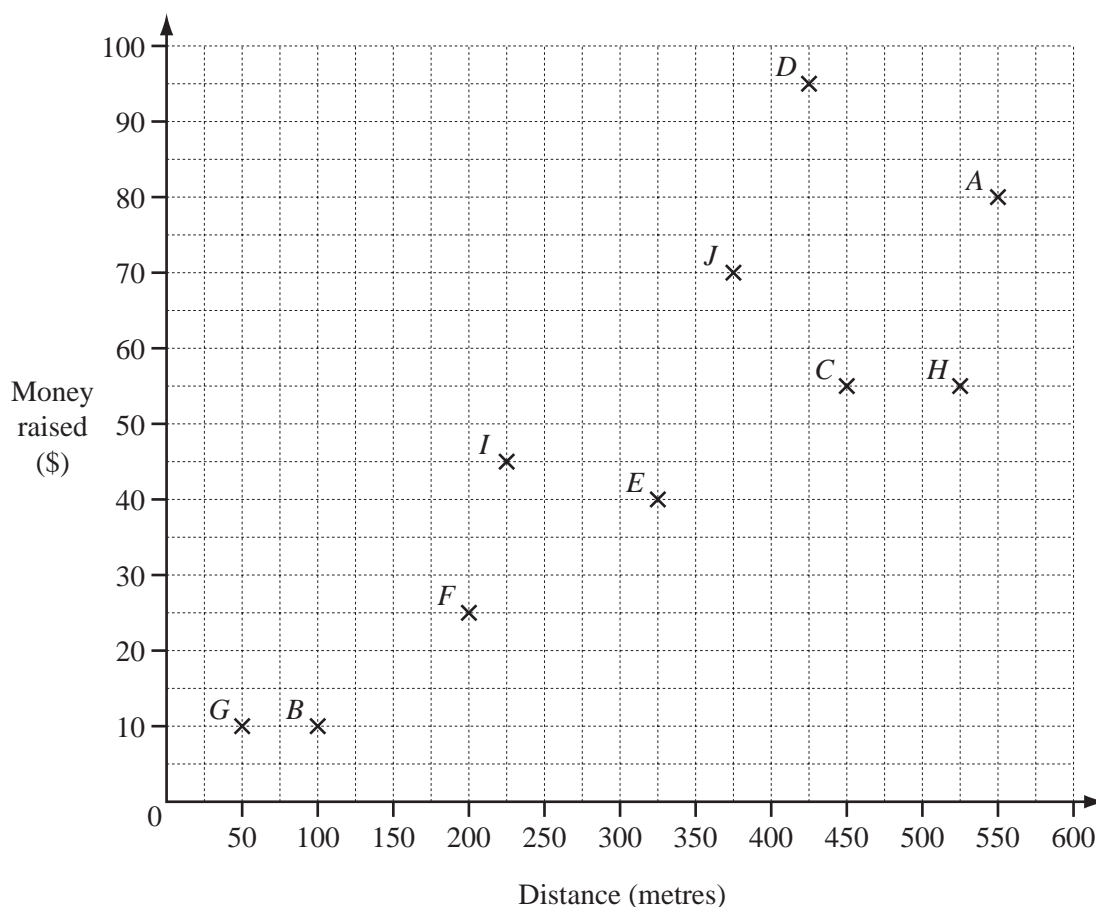
- (b) less than 160 cm,

Answer(b) [1]

- (c) in the group 160 – 169 cm.

Answer(c) [1]

- 16 Some children took part in a sponsored swim to raise money for charity. The scatter diagram shows the results for 10 of the children.



- (a) (i) How much further did *A* swim than *J*?

Answer(a)(i) m [1]

- (ii) How much more money did *D* raise than *F*?

Answer(a)(ii) \$ [1]

- (b) The results for 2 more children are given in the table below.

Child	Distance (m)	Money raised (\$)
<i>K</i>	125	35
<i>L</i>	475	80

Plot the results for *K* and *L* on the scatter diagram.

[1]

- (c) What type of correlation does the scatter diagram show?

Answer(c) [1]

17

Month	Total rainfall (mm)	Average daily sunshine (hours)
January	79	6
February	84	7
March	62	4.5
April	46	1.5
May	53	3.5
June	54	1.5

The table shows some data about rainfall and sunshine.

(a) For the **rainfall**, calculate

(i) the mean,

Answer(a)(i) mm [2]

(ii) the range.

Answer(a)(ii) mm [1]

(b) For the **sunshine**, find

(i) the mode,

Answer(b)(i) h [1]

(ii) the median.














Answer(b)(ii) h [2]

(c) Dinesh draws a pie chart to display the **rainfall data**.


Calculate the sector angle for **February**.

Answer(c) [2]

- (d) Amalia draws a pictogram to display the **sunshine data** for January and February.

January	     
February	      
March	

- (i) Complete the key for the pictogram.

 represents
--

[1]

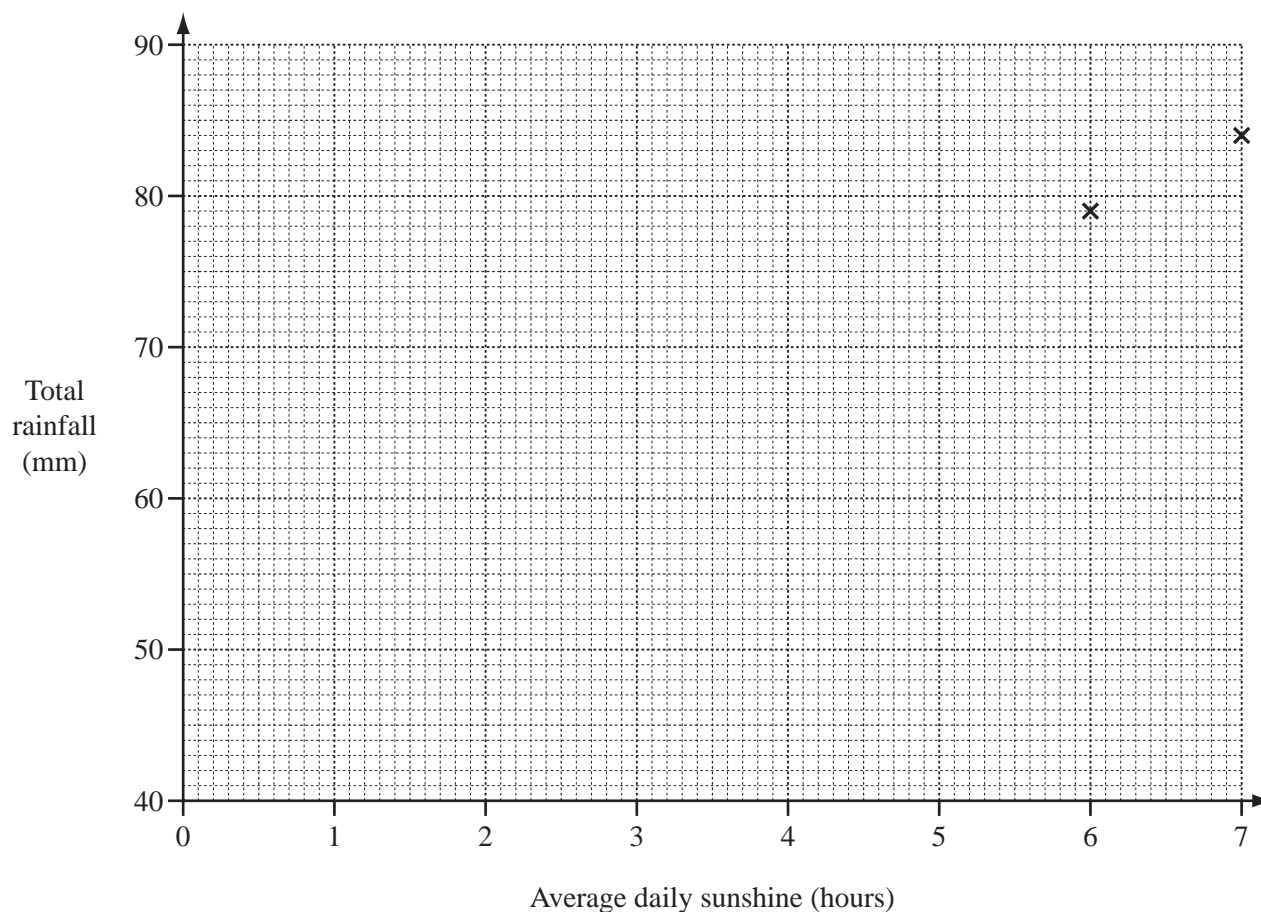
- (ii) Complete the pictogram for March.

[1]

- (e) Priya draws a scatter diagram to find the correlation between rainfall and sunshine for January to June.

- (i) Complete the scatter diagram below.

January and February are plotted for you.

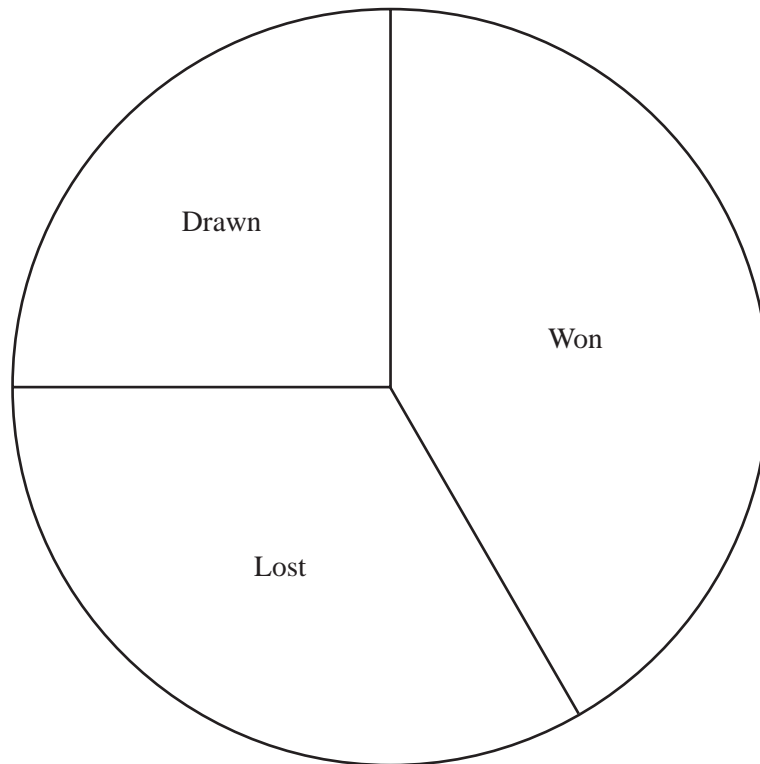


[2]

- (ii) What type of correlation does the scatter diagram show?

Answer(e)(ii) [1]

- 18 (a) The results of 24 games of hockey played by a school team in one year are shown in the pie chart below.



- (i) Show that the school team won 10 games during the year.

Answer(a)(i)

[2]

- (ii) Find how many games were lost and how many games were drawn.

Answer(a)(ii) Lost

Drawn [3]

(b) The number of goals scored by the hockey team in each of the 24 games are shown below.

0	2	1	1	0	3	2	5
3	0	2	3	2	1	4	0
2	1	2	1	0	1	4	1

(i) Complete the frequency table below. You may use the tally column to help you.

Number of goals per game	Tally	Number of games
0		
1		
2		
3		
4		
5		

[2]

(ii) Write down the mode.

Answer(b)(ii) [1]

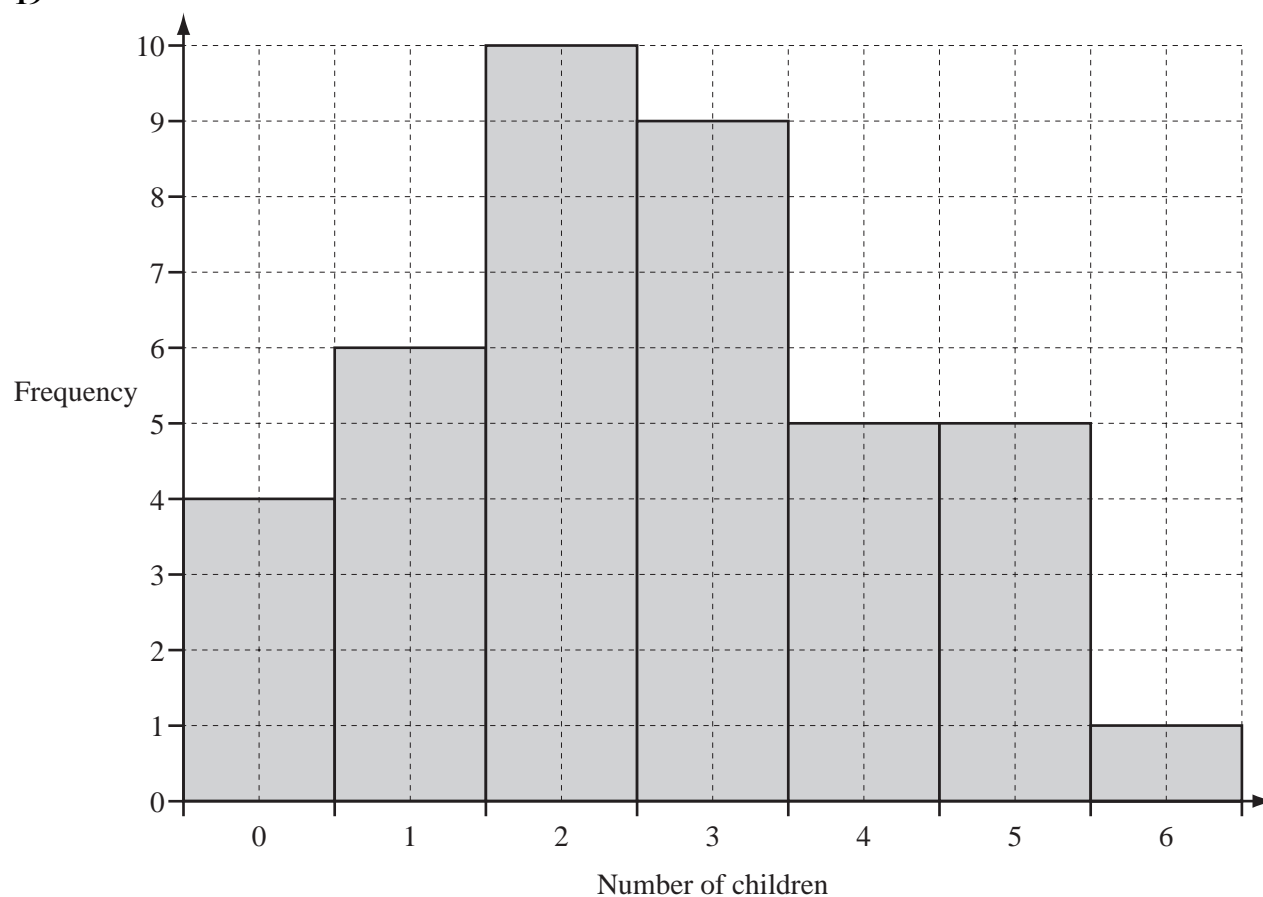
(iii) Find the median.

Answer(b)(iii) [2]

(iv) Calculate the mean number of goals per game.

Answer(b)(iv) [3]

19



The number of children in each of 40 families was recorded.
The bar chart shows the results.

(a) Complete the frequency table.

Number of children	0	1	2	3	4	5	6
Frequency	4	6					

[3]

(b) Find

(i) the mode,

Answer(b)(i) [1]

(ii) the median,

Answer(b)(ii) [2]

(iii) the mean.

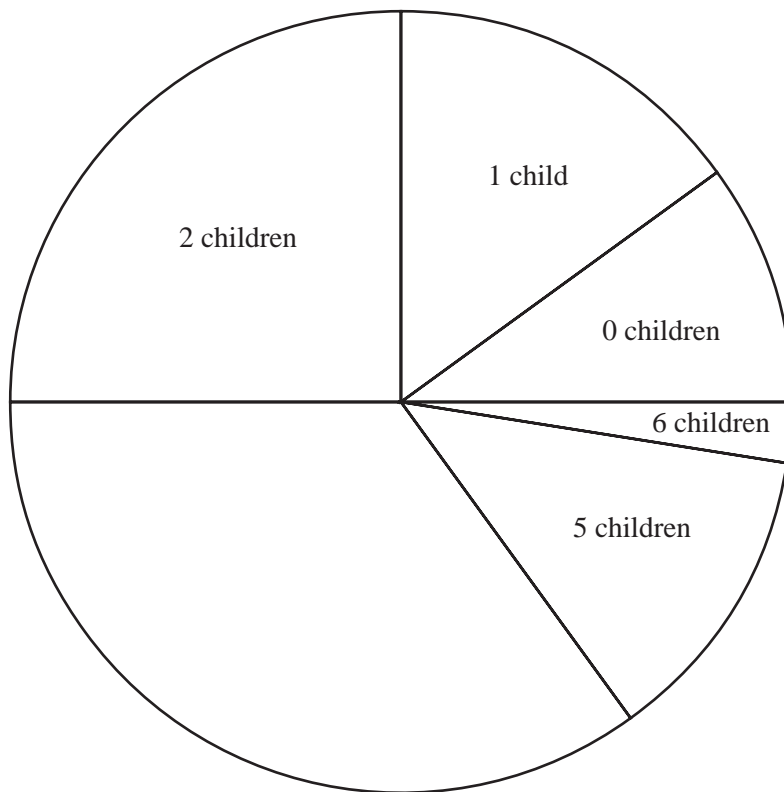
Answer(b)(iii) [3]

(c) A pie chart showing the information has been started.

(i) Calculate the angles of the sectors for 3 and 4 children.

Answer(c)(i) , [3]

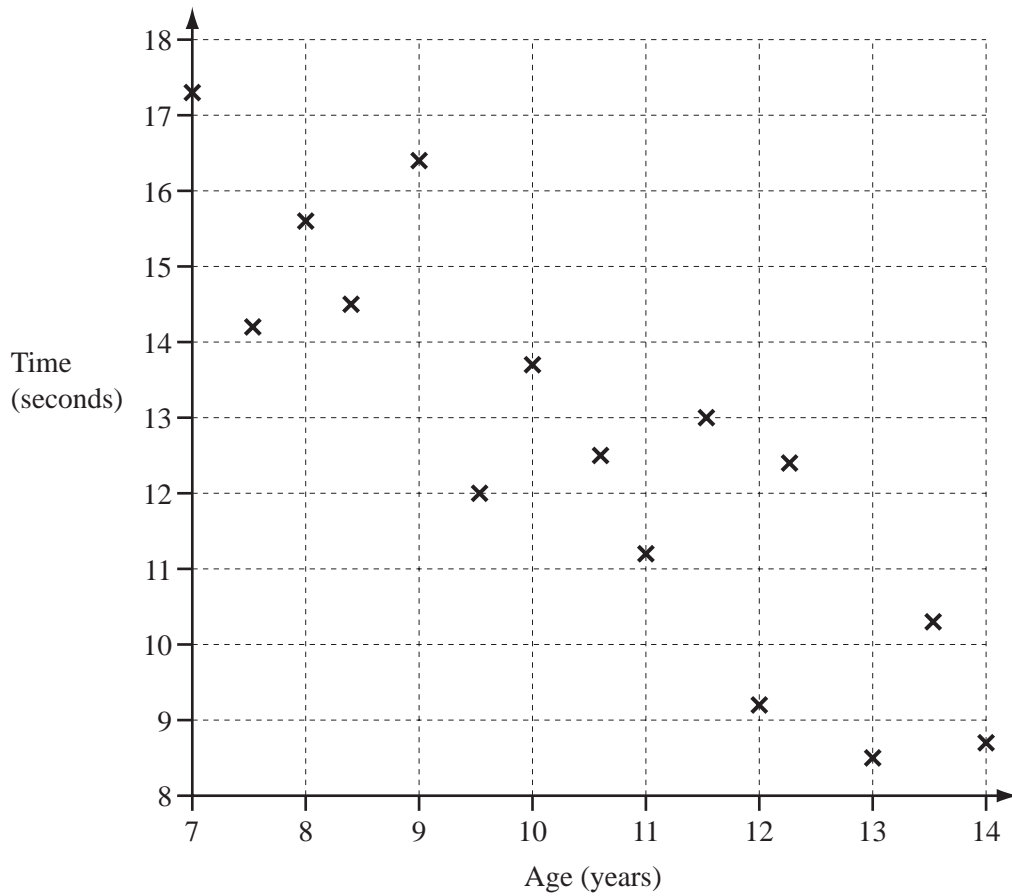
(ii) Complete the pie chart accurately.



[1]

- 20 Fifteen children ran a 60 metre race.

In the scatter diagram below, the time taken is plotted against the age for each child.



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

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

Answer(b) [1]

- (c) Describe how the times taken change with the ages of the children.

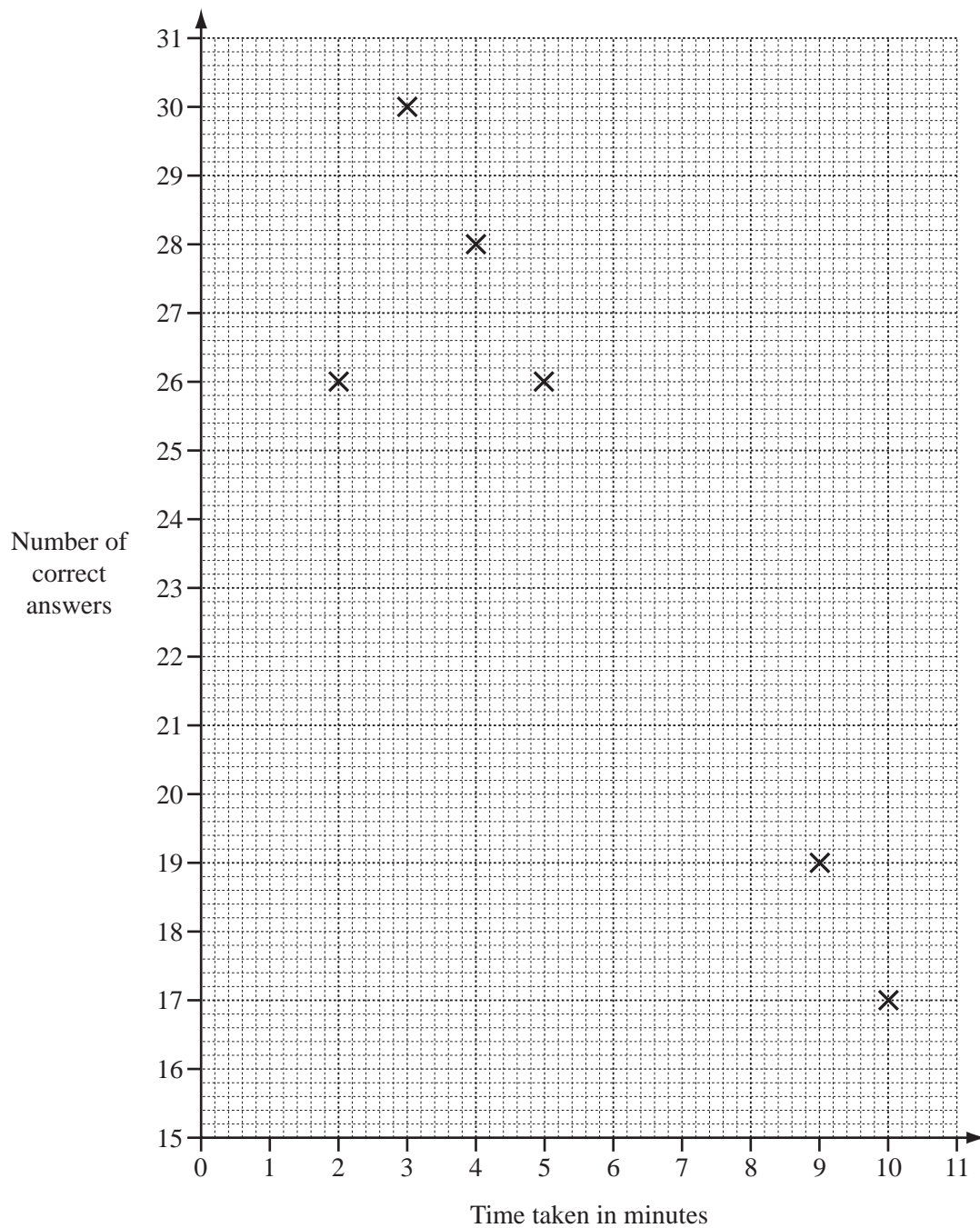
Answer (c) [1]

- 21 Twelve students each answer 30 questions in a quiz.

The time taken and the number of correct answers for each student is given in the table.

Time taken in minutes	9	4	5	10	3	2	8	8	4	5	6	7
Number of correct answers	19	28	26	17	30	26	25	20	23	21	24	22

- (a) Complete the scatter diagram below to show this information.
The first six points have been plotted for you.



[3]

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

Answer(b) [1]

(c) (i) Find the range of the **time taken**.

Answer(c)(i) min [1]

(ii) Calculate the mean time taken.

Answer(c)(ii) min [3]

(d) (i) Find the mode for the **number of correct answers**.

Answer(d)(i) [1]

(ii) Find the median for the number of correct answers.

Answer(d)(ii) [1]

(e) One of the 12 students is selected at random.

Write down the probability that the student

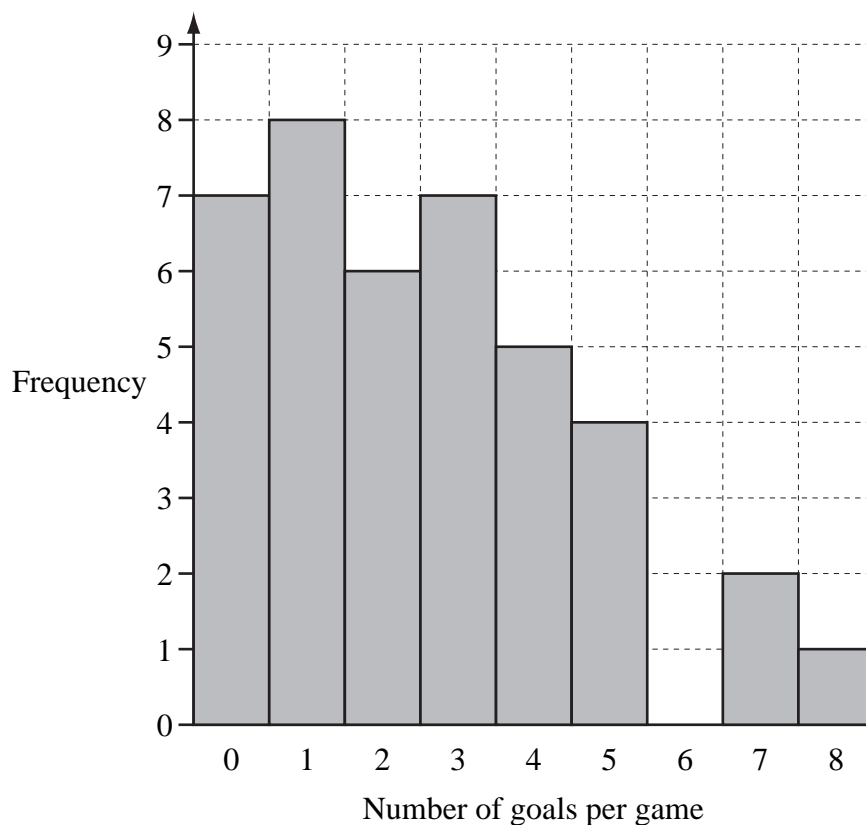
(i) took more than 8 minutes to answer the quiz,

Answer(e)(i) [1]

(ii) took less than 5 minutes **and** had more than 24 correct answers.

Answer(e)(ii) [2]

22



Karen keeps a record of how many goals United score in each of 40 games. She draws a bar chart to show this information.

(a) Use the information in the bar chart to complete the frequency table below.

Number of goals per game	0	1	2	3	4	5	6	7	8
Frequency							0	2	1
Frequency \times Number of goals							0	14	8

[2]

(b) (i) How many goals did United score in the 40 games?

Answer(b)(i) [1]

(ii) Calculate the mean number of goals scored per game.

Answer(b)(ii) [2]

(iii) Find the median.

Answer(b)(iii) [2]

(iv) Write down the mode.

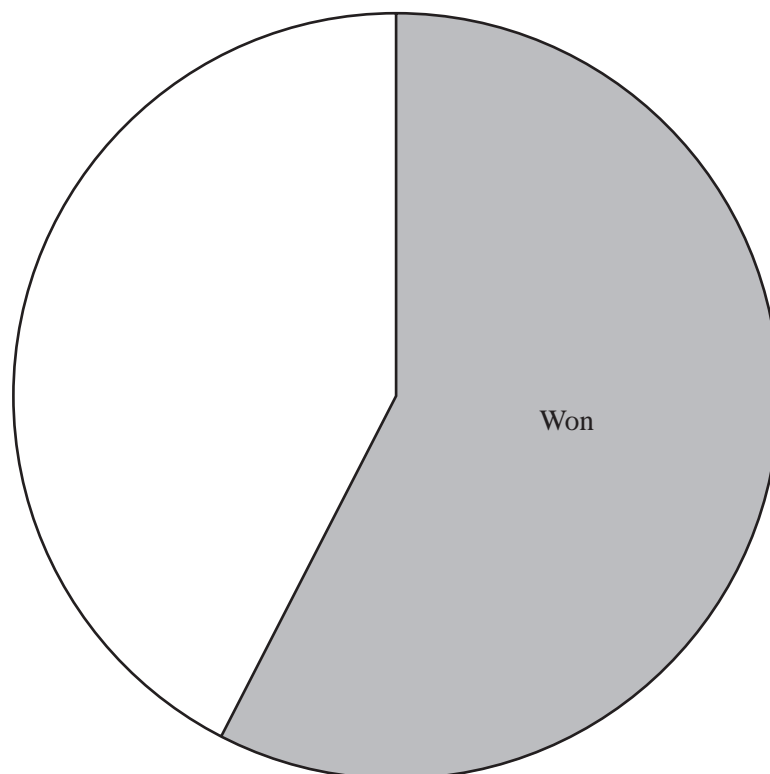
Answer(b)(iv) [1]

(c) United won 23 games and lost 12 games.
The other games ended in a draw.

(i) How many games ended in a draw?

Answer(c)(i) [1]

(ii) Complete the pie chart accurately to represent these results. Label the sectors.



[2]

(d) If one game from the 40 is chosen at random, use the information in **part (c)** to find the probability that United

(i) won,

Answer(d)(i) [1]

(ii) did not draw.

Answer(d)(ii) [1]

- 23 The table below shows the number of visitors to a museum each day during one week.

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Number of visitors	64	34	75	77	85	96	38

- (a) Work out the mean number of visitors per day during this week.

Answer(a) [2]

- (b) Find the range.

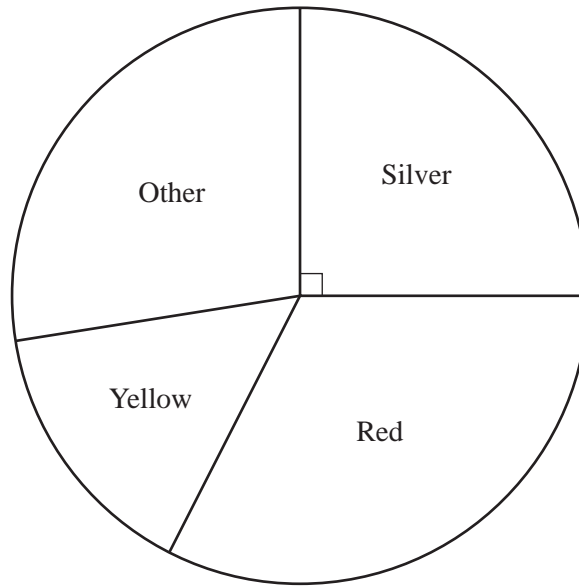
Answer(b) [1]

- (c) On the grid below, draw a bar chart to show the information given in the table.
Use a vertical scale of 1 cm to represent 10 visitors.



[5]

24



The accurate pie chart shows information about the colours of 240 cars in a car park.

- (a) The sector angle for silver cars is 90° .
Calculate the number of silver cars in the car park.

Answer(a) [1]

- (b) There are 36 yellow cars in the car park.
Showing all your working, calculate the sector angle for yellow cars.

Answer(b) [2]

- (c) (i) Measure and write down the sector angle for red cars.

Answer(c)(i) [1]

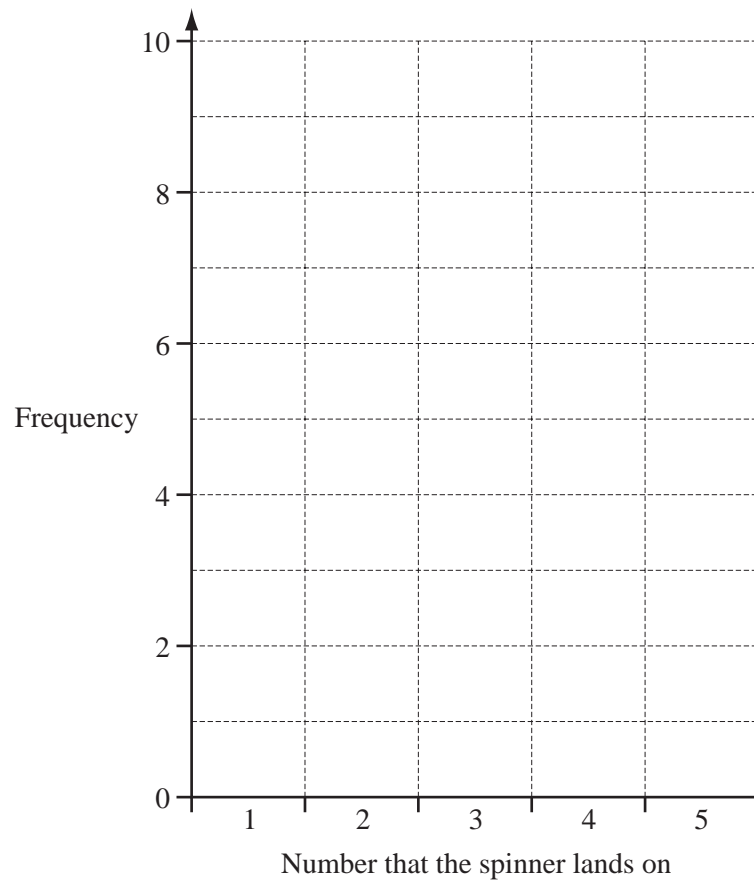
- (ii) Calculate the percentage of red cars in the car park.

Answer(c)(ii) % [2]

(iii) Calculate the mean.

Answer(b)(iii) [3]

(iv) On the grid, draw a bar chart to show these results.



[3]

25 A school has 350 students.

(a) On the school sports day 96% of the students were present.

Calculate how many students were **absent**.

Answer(a) [2]

(b) The table shows the number of students attending school in one week.

Monday	Tuesday	Wednesday	Thursday	Friday
334	329	348	341	323

For these values,

(i) calculate the mean,

Answer(b)(i) [2]

(ii) find the median,

Answer(b)(ii) [1]

(iii) find the range.

Answer(b)(iii) [1]

26 The table below shows the age and price of 20 used cars in a showroom.

Age (years)	6	5	4	5	4	5	1	6	3	8
Price (\$)	1800	7600	9500	2500	4100	3100	5600	4700	4800	7900
Age (years)	1	2	9	10	3	7	1	8	2	3
Price (\$)	6500	7000	1000	3800	1900	5200	3400	2100	4300	8200

(a) Use this information to complete the following table.

Age of cars (years)	Number of cars	Angle in a pie chart
1 to 3	8	144°
4 to 6	7	
7 or more		

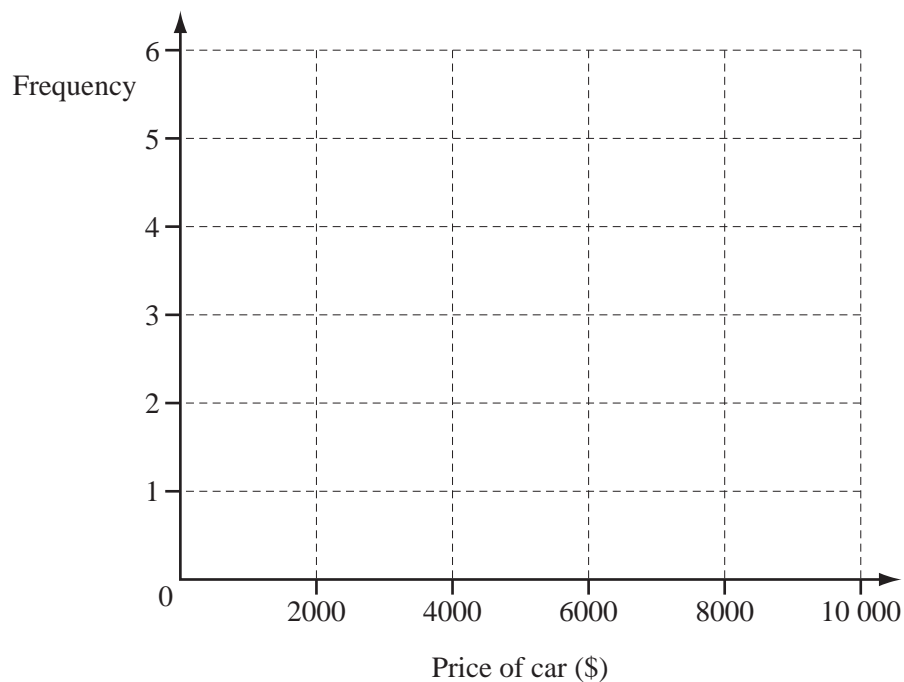
[3]

(b) (i) Complete the frequency table for the price, \$ x , of the cars.

Price (\$)	$0 \leq x < 2000$	$2000 \leq x < 4000$	$4000 \leq x < 6000$	$6000 \leq x < 8000$	$8000 \leq x < 10\,000$
Frequency					

[2]

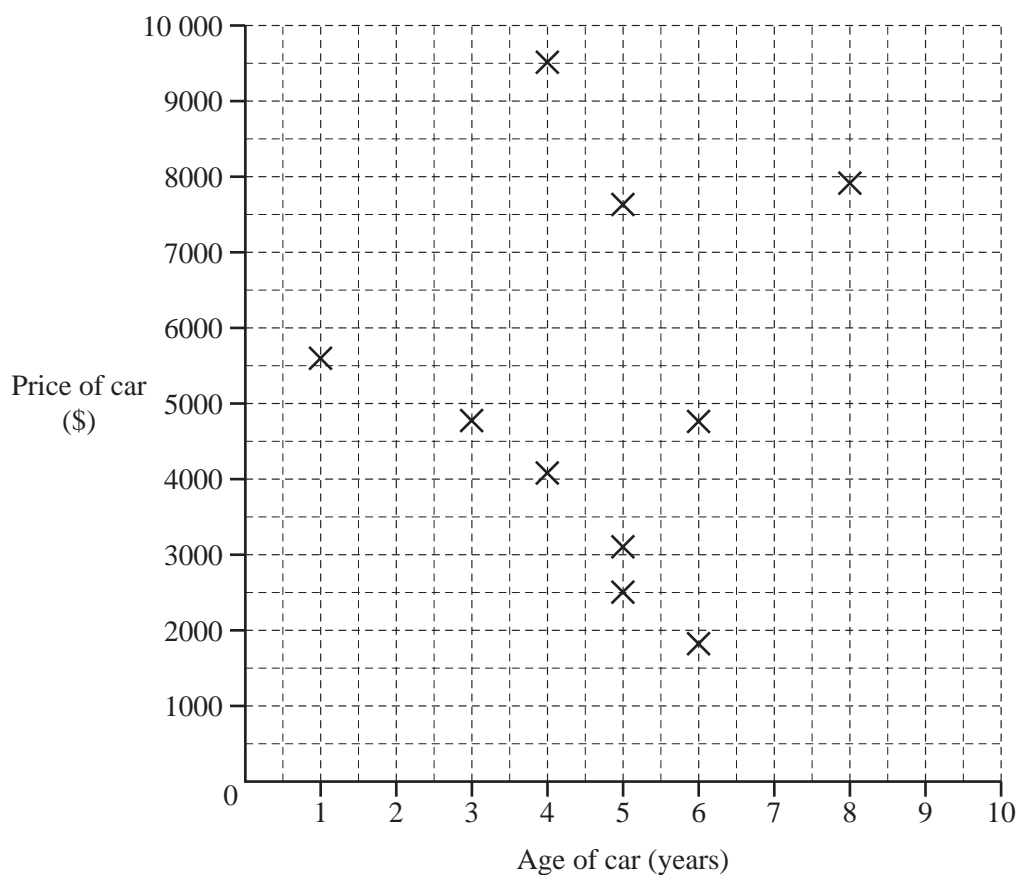
(ii) Draw a histogram to show this information.



[2]

- (c) (i) On the grid below complete the scatter diagram showing the age and price of each car.

The first 10 points from the original table have been plotted.



[3]

- (ii) What correlation is there between the price of a car and its age?

Answer(c)(ii) [1]

- (iii) A car is chosen at random.

Using your scatter diagram, find the probability that the car is more than 4 years old and the price is more than \$5000.

Answer(c)(iii) [2]

- 27 A travel brochure contains 24 pictures from different countries.
The table shows how many pictures there are from each country.

Country	Number of pictures	Angle in a pie chart
Argentina	6	90°
South Africa	10	150°
Australia	3	
New Zealand		

- (a) Complete the table. [3]
- (b) Complete the pie chart accurately and label the sectors for South Africa, Australia and New Zealand.



[2]

- 28 The table below shows the average daily sunshine, s , and the total monthly rainfall, r , for a city during one year.

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
s (hours)	6	7	7	9	10	12	12	12	9	8	6	5
r (mm)	70	52	72	41	20	6	1	4	16	52	65	67

(a) For s , find

(i) the mode

Answer(a)(i) hours [1]

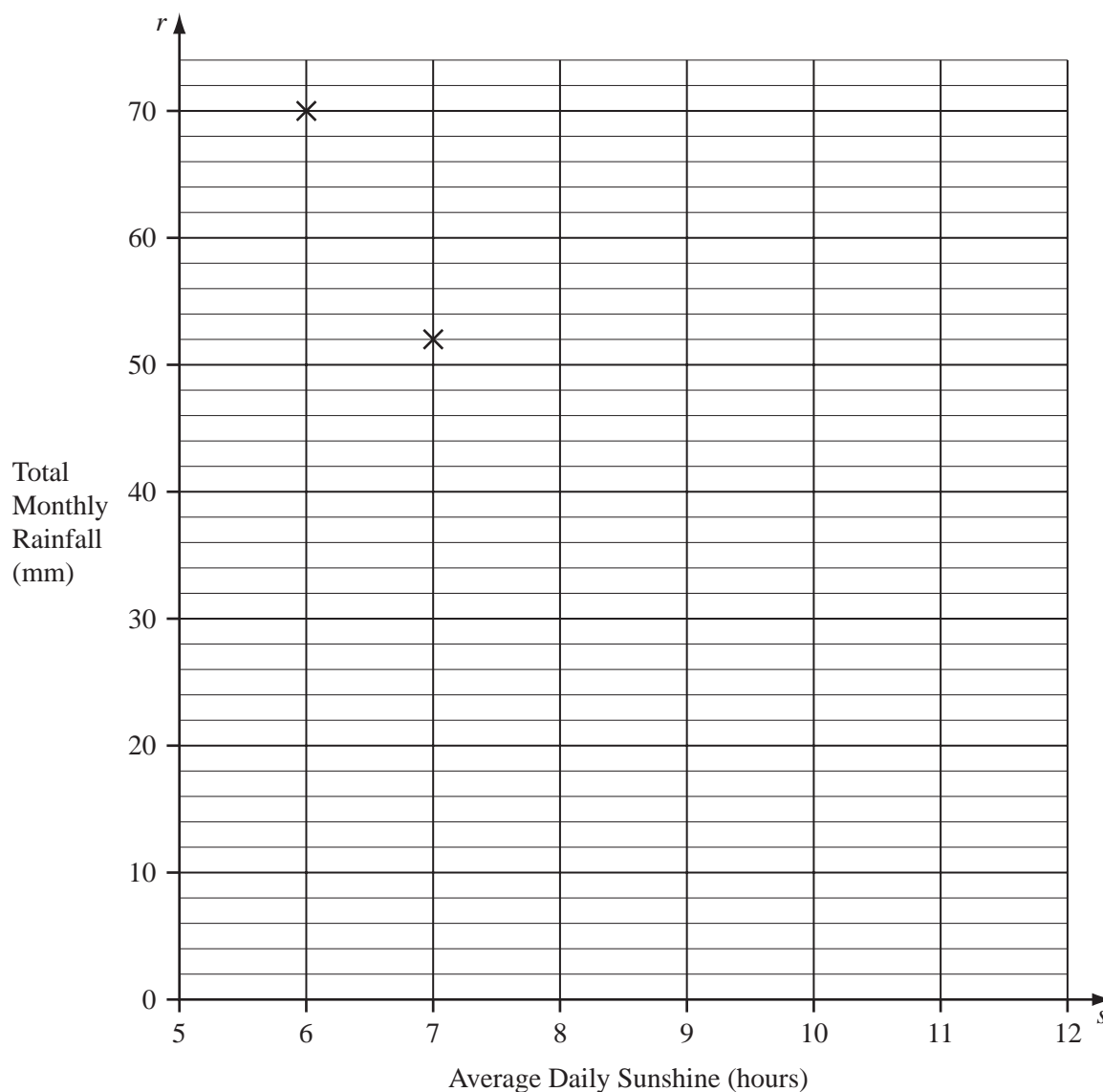
(ii) the range,

Answer(a)(ii) hours [1]

(iii) the median.

Answer(a)(iii) hours [2]

(b) On the grid below, plot the 10 points for March to December to complete the scatter diagram.



[3]

- (c) (i) Calculate the mean of s .

Answer(c)(i) hours [2]

- (ii) The mean of r is 38.8 millimetres.

On the grid, plot the point representing these means. Label this point M. [1]

- (d) (i) Draw a line of best fit on the grid. [1]

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

Answer(d)(ii) [1]

29 Marie counts the number of people in each of 60 cars one morning.

(a) She records the first 40 results as shown below.

Number of people in a car	Tally	Number of cars
1		
2		
3		
4		
5		
6		

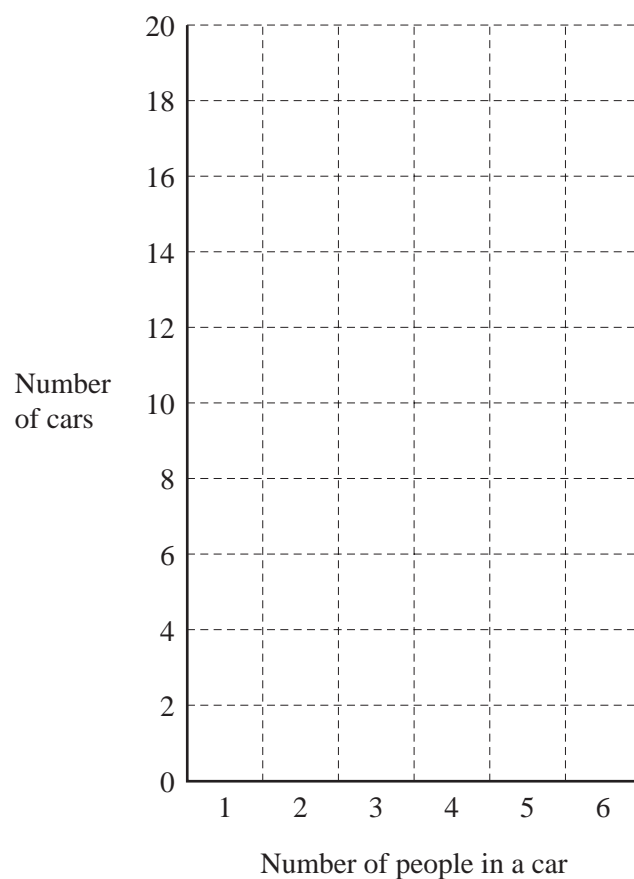
The remaining 20 results are

2, 2, 5, 2, 2, 4, 2, 6, 5, 3, 4, 5, 4, 6, 2, 5, 3, 2, 1, 6.

(i) Use these results to complete the frequency table above.

[2]

(ii) On the grid below, draw a bar chart to show the information for the 60 cars.



[1]

(iii) Write down the mode.

Answer(a)(iii) [1]

(iv) Find the median.

Answer(a)(iv) [1]

(v) Work out the mean.

Answer(a)(v) [3]

(b) Manuel uses Marie's results to draw a pie chart.

Work out the sector angle for the number of cars with 5 people.

Answer(b) [2]

- 30 Margarita keeps a record of all her marks for science experiments, as shown in the table below.

Mark	5	6	7	8	9	10
Frequency	1	5	10	9	7	3

- (a) (i) How many science experiments did Margarita do?

Answer(a)(i) [1]

- (ii) Write down the mode.

Answer(a)(ii) [1]

- (iii) Find the median.

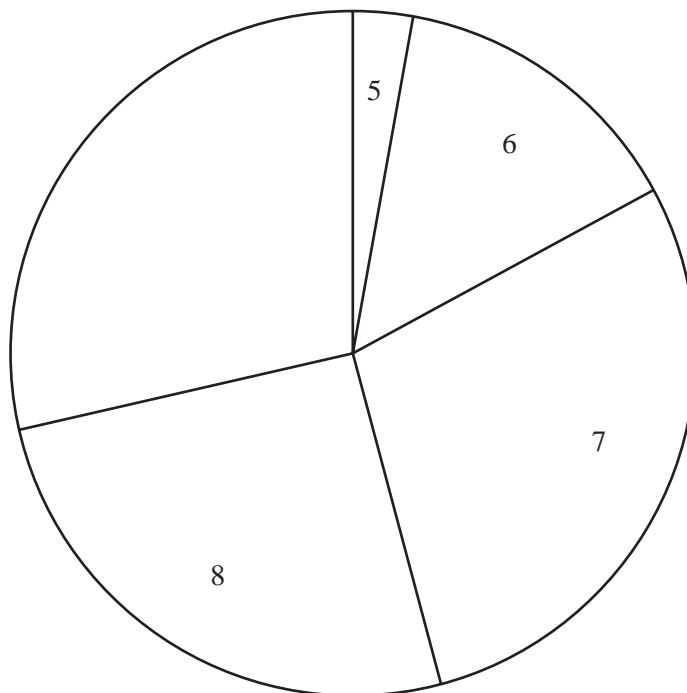
Answer(a)(iii) [1]

- (iv) Calculate the mean.

Answer(a)(iv) [3]

- (b) Margarita draws a pie chart to show this information.

The sectors for her marks of 5, 6, 7 and 8 have already been drawn.



- (i) Calculate the angle of the sector for her mark of 9.

Answer(b)(i) [2]

- (ii) Complete the pie chart accurately.

[1]

31 15 students estimated the area of the rectangle shown below.



Their estimates, in square centimetres, were

45	44	50	50	48
24	50	46	43	50
48	20	45	49	47

(a) Work out

(i) the mode,

Answer(a)(i) cm² [1]

(ii) the mean,

Answer(a)(ii) cm² [2]

(iii) the median.

Answer(a)(iii) cm² [2]

(b) Explain why the mean is not a suitable average to represent this data.

Answer(b)

[1]

- 32 A bag contains 24 discs.
10 discs are red, 9 discs are green and 5 discs are yellow.

- (a) The number of discs of each colour can be shown by three sectors on a pie chart.
The sector angle for the red discs is 150° .

Work out the sector angle for

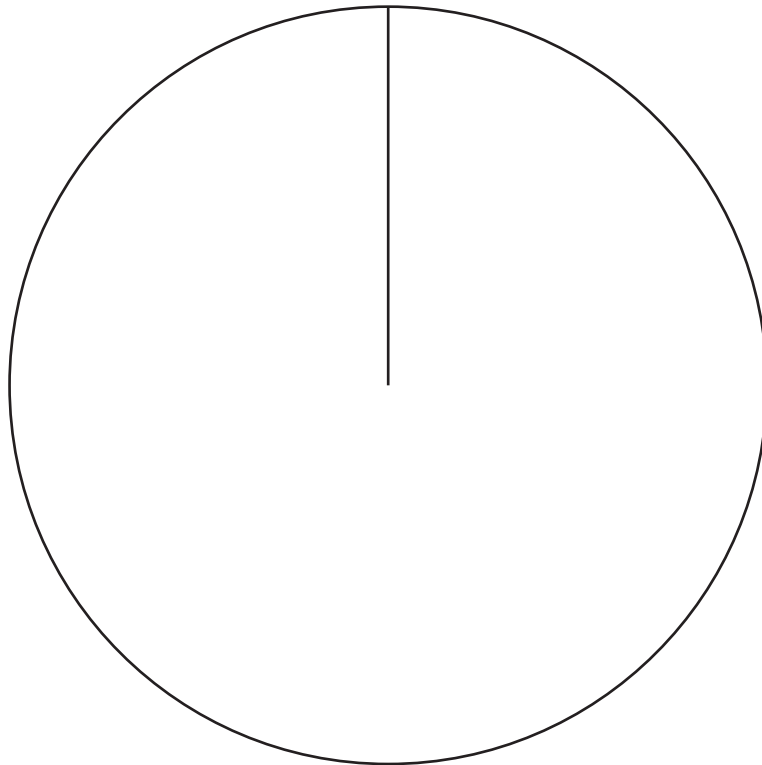
- (i) the green discs,

Answer(a)(i) [1]

- (ii) the yellow discs.

Answer(a)(ii) [1]

- (iii) Complete the pie chart below and label the sectors.



[2]

(b) A disc is chosen at random.

Find, **as a fraction**, the probability of each of the following events.

(i) Event A: the disc is red.

Answer(b)(i) [1]

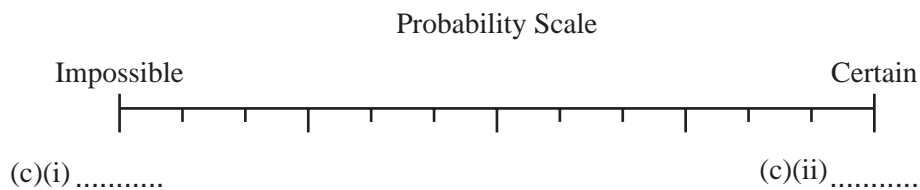
(ii) Event B: the disc is red or yellow.

Answer(b)(ii) [1]

(iii) Event C: the disc is **not** yellow.

Answer(b)(iii) [1]

(c)



The diagram shows a horizontal probability scale.

Write on the dotted lines in the diagram, the probability of

(i) an impossible event, [1]

(ii) a certain event. [1]

(d) Using the notation, A, B and C, mark the positions of your three answers in **part (b)** on the Probability Scale diagram in **part (c)**. [3]

33 Daniel plots a scatter diagram of speed against time taken.

- (a) As the time taken increases, speed decreases.

Which one of the following types of correlation will his scatter graph show?

Positive

Negative

Zero

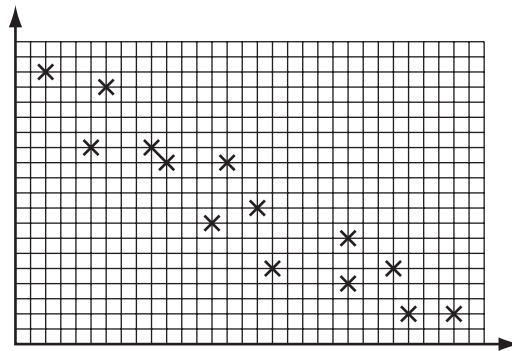
Answer [1]

- (b) Which word describes the correlation in the scatter graph below?

positive

negative

none



Answer [1]

- 34 (a) Naomi records the sizes of the 34 pairs of shoes that her shop sells in one day.

4 10 5 6 4 8 6 4 7 3 9 7 4
 7 3 5 4 6 5 10 7 5 5 6 4 7
 7 6 6 5 5 3 5 6

- (i) Using the list above complete the frequency table.

Shoe size	3	4	5	6	7	8	9	10
Frequency								

[3]

- (ii) Calculate the mean of these shoe sizes.

Answer(a) (ii) [3]

- (iii) Find the range of these sizes.

Answer(a) (iii) [1]

- (iv) Find the mode of these sizes.

Answer(a) (iv) [1]

- (v) Work out the median shoe size.

Answer(a) (v) [2]

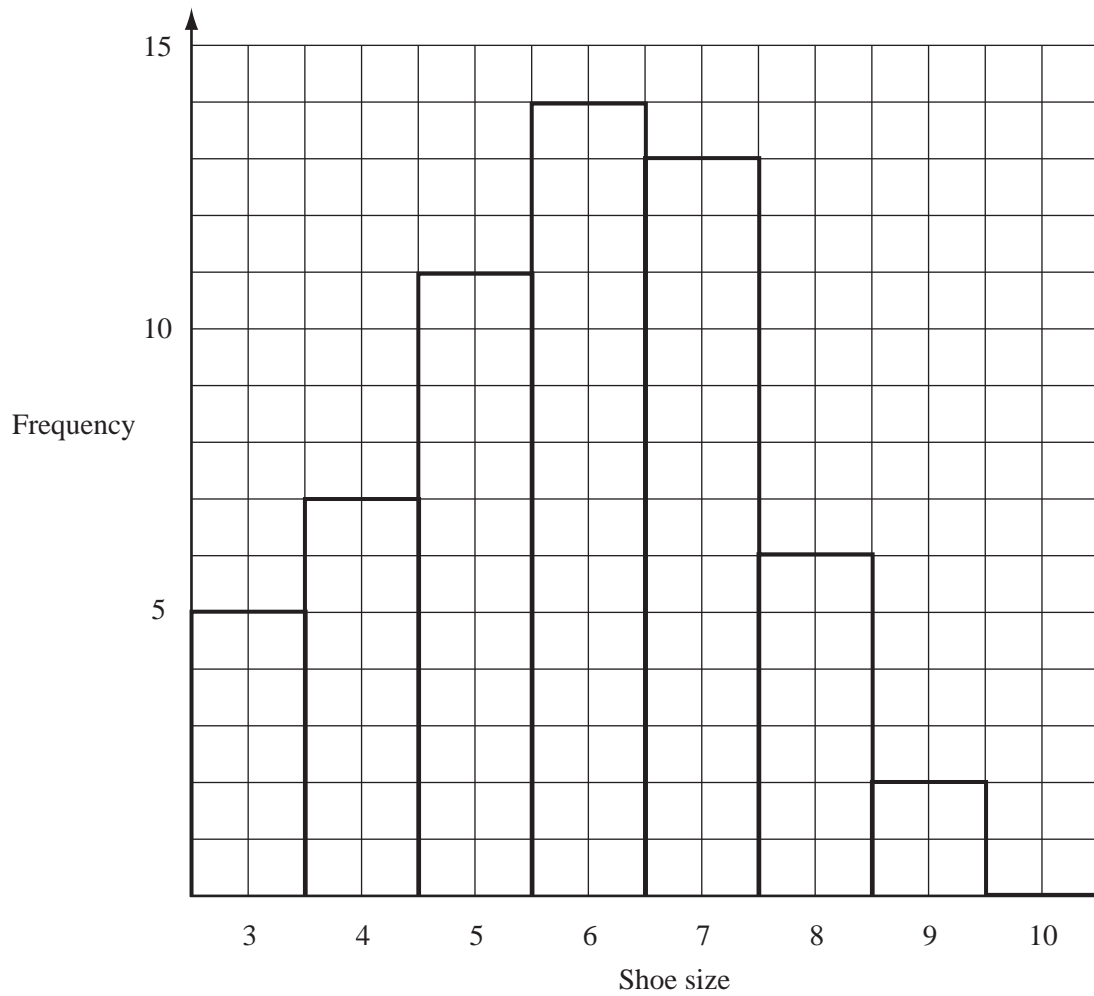
- (vi) Calculate the percentage of all the pairs of shoes that are size 7.

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

- (vii) Naomi orders 306 pairs of shoes to sell in her shop.
 Estimate how many of these pairs of shoes should be size 7.

Answer(a) (vii) [2]

(b) Findlay draws a bar chart to show how many pairs of shoes he has sold in his shop in one week.



(i) Use the information in the bar chart to complete the frequency table below.

Shoe size	3 and 4	5 and 6	7 and 8	9 and 10
Frequency				

[2]

(ii) Which is the modal class in the frequency table?

Answer(b) (ii) [1]

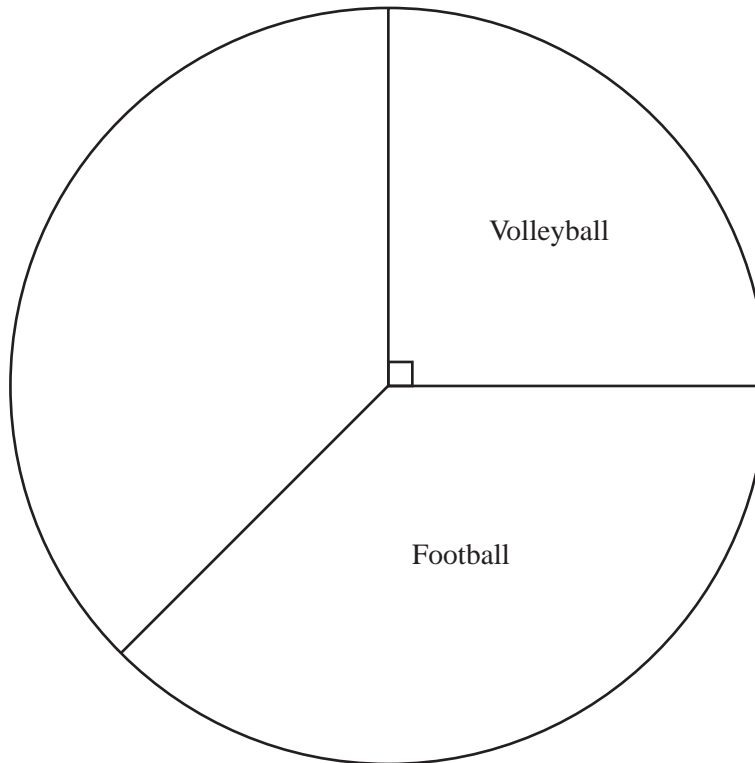
- 35** Yousef asked 24 students to choose their favourite sport.
He recorded the information in the table below so that he could draw a pie chart.

(a) Complete the table.

Sport	Volleyball	Football	Hockey	Cricket
Number of students	6	9	7	2
Angle on pie chart	90°	135°		

[2]

(b) Complete the pie chart accurately to show this data.



[1]

(c) Which is the modal sport?

Answer(c) [1]

- 36 Ahmed selected a sample of 10 students from his school and measured their hand spans and heights. The results are shown in the table below.

Hand span (cm)	15	18.5	22.5	26	19	23	17.5	25	20.5	22
Height (cm)	154	156	164	178	162	170	154	168	168	160

He calculated the mean hand span to be 20.9 cm and the range of the hand spans to be 11 cm.

(a) Calculate

(i) the mean **height**,

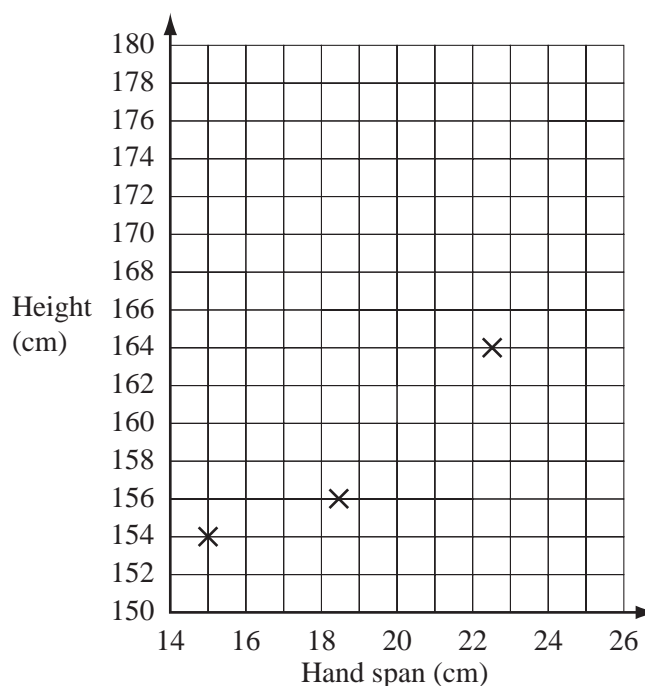
Answer(a)(i) Mean = cm [2]

(ii) the range of the **heights**.

Answer(a)(ii) Range = cm [2]

(b) In order to compare the two measures, he used a scatter diagram.

The first three points are plotted on the grid.



- (i) Complete the scatter diagram by plotting the remaining 7 points. [2]
 (ii) Draw the line of best fit on the grid. [1]
 (iii) Use the line of best fit to estimate the height of a student with hand span 21 cm.

Answer(b)(iii) cm [1]

(iv) Which one of the following words describes the correlation?

Positive Negative Zero

Answer(b)(iv) [1]

(v) What does this indicate about the relationship between hand span and height?

Answer(b)(v) [1]

37 Jane records the number of telephone calls she receives each day for two weeks.

5 6 10 0 15 6 12 2 13 16 0 16 6 10

(a) Calculate the mean.

Answer(a) [3]

(b) Find the median.

Answer(b) [2]

(c) Write down the mode.

Answer(c) [1]

(d) Complete the frequency table below.

Number of calls	0 – 4	5 – 9	10 – 14	15 – 19
Frequency				

[2]

(e) Find the probability that Jane receives

(i) ten or more calls,

Answer(e)(i) [1]

(ii) less than five calls.

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

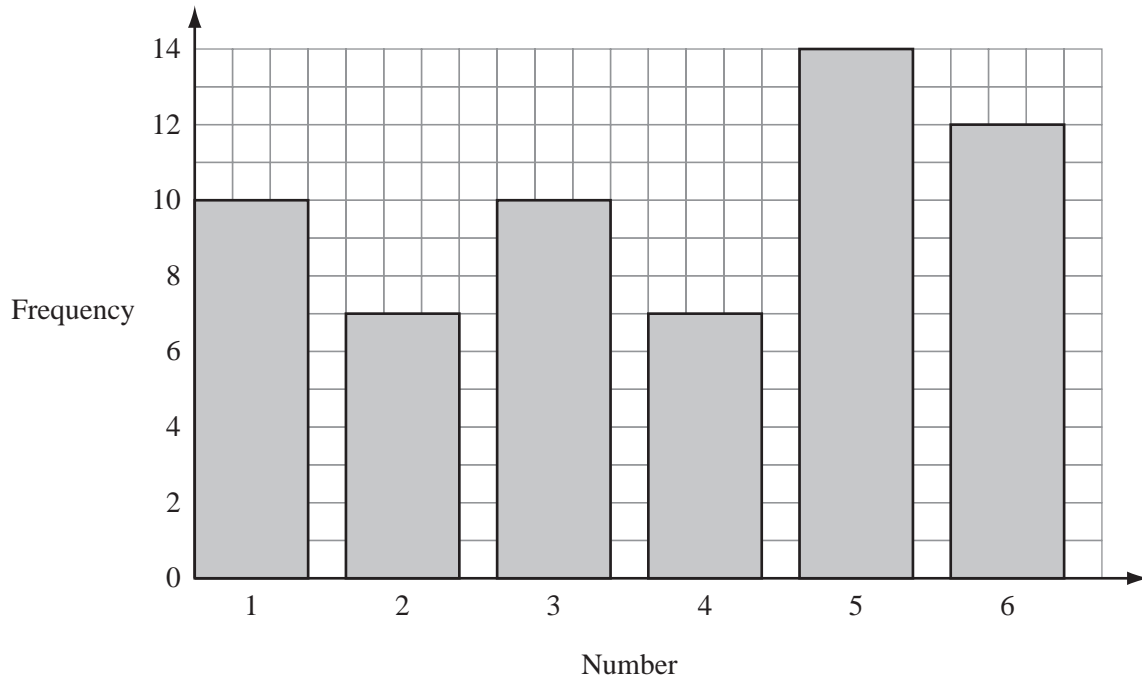
(f) Estimate the number of days in the next six weeks that Jane can expect to receive 10 – 14 calls.

Answer(f) days [2]

- (iv) Calculate the mean.
Give your answer correct to one decimal place.

Answer(a)(iv) [3]

- (b) Asif tests a **different** six-sided spinner.
He draws a bar chart to show the results.



- (i) How many times did he spin this spinner?

Answer(b)(i) [2]

- (ii) Calculate the mean score for this spinner.

Answer(b)(ii) [3]

- 38 (a) The list shows the rainfall in millimetres in Prestbury for the 12 months of 2002.

61 146 22 54 67 94 141 22 37 167 87 170

- (i) Write down the mode.

Answer(a)(i) mm [1]

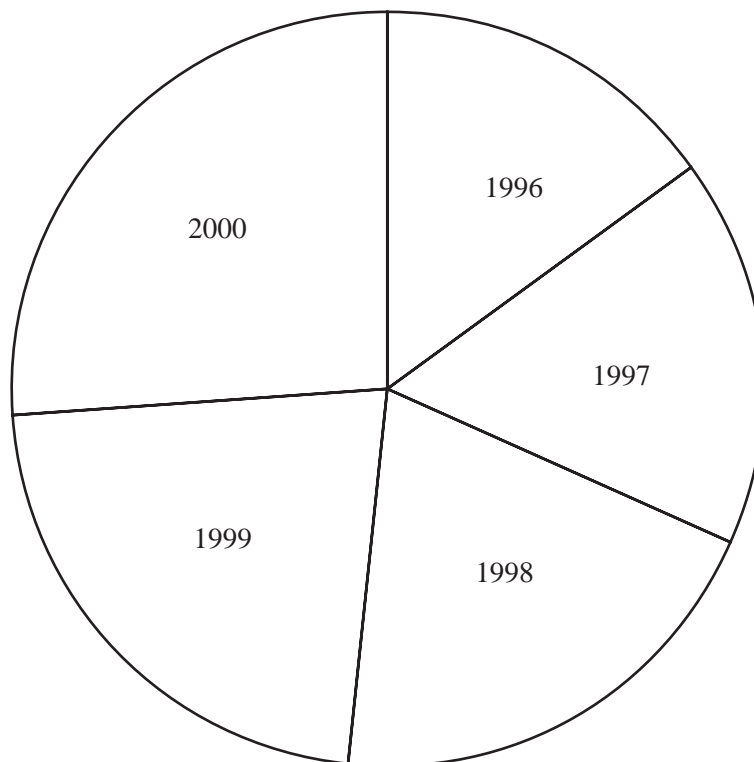
- (ii) Find the median.

Answer(a)(ii) mm [2]

- (iii) Calculate the mean.

Answer(a)(iii) mm [2]

- (b) During the years 1996 - 2000 the total rainfall in Prestbury was 5400 millimetres.
The pie chart shows how this was spread over the five years.



- (i) Measure the angles of the sectors for 1998, 1999 and 2000.
Write your answers in the table below. [3]
- (ii) Work out the annual rainfall, in millimetres, for each of the years 1998, 1999 and 2000.
Write your answers in the table below. [3]

Answers (b)(i) and (ii)

Year	Angle (degrees)	Rainfall (mm)
1996	54	810
1997	60	900
1998		
1999		
2000		
Total	360	5400

- (iii) What do you notice about the trend in the rainfall from 1996 to 2000?

Answer(b)(iii)

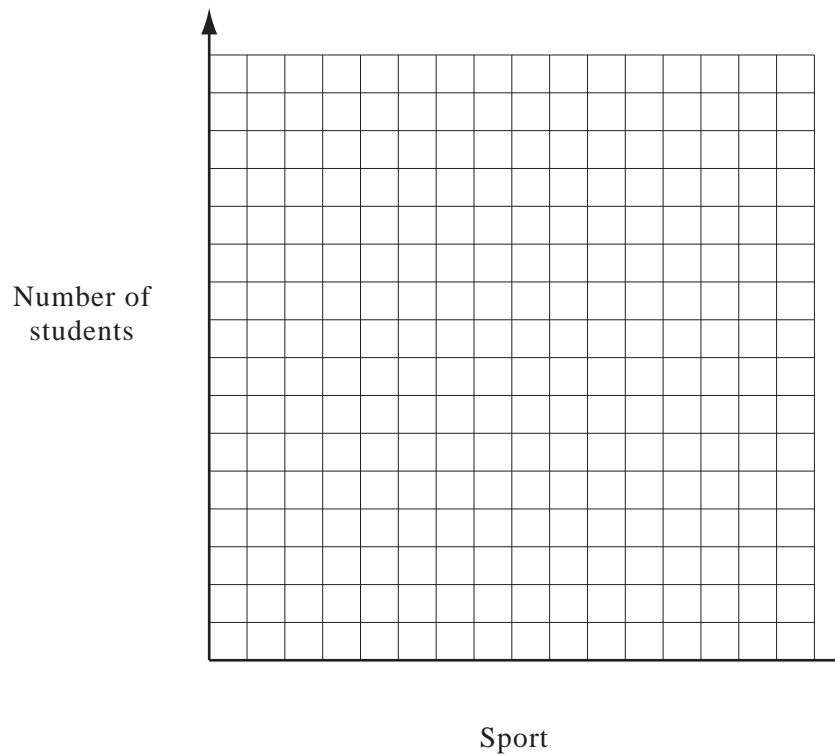
..... [1]

- 39 In a school, the number of students taking part in various sports is shown in the table below.

Sport	Number of students
Basketball	40
Soccer	55
Tennis	35
Volleyball	70

Draw a bar chart below to show this data.
Show your scale on the vertical axis and label the bars.

Answer



[4]

- 40 (a)** The list shows marks in an examination taken by a class of 10 students.

65, 51, 35, 34, 12, 51, 50, 75, 48, 39

- (i)** Write down the mode.

Answer(a)(i) [1]

- (ii)** Work out the median.

Answer(a)(ii) [2]

- (iii)** Calculate the mean.

Answer(a)(iii) [2]

- (b)** Grades were awarded for the examination.

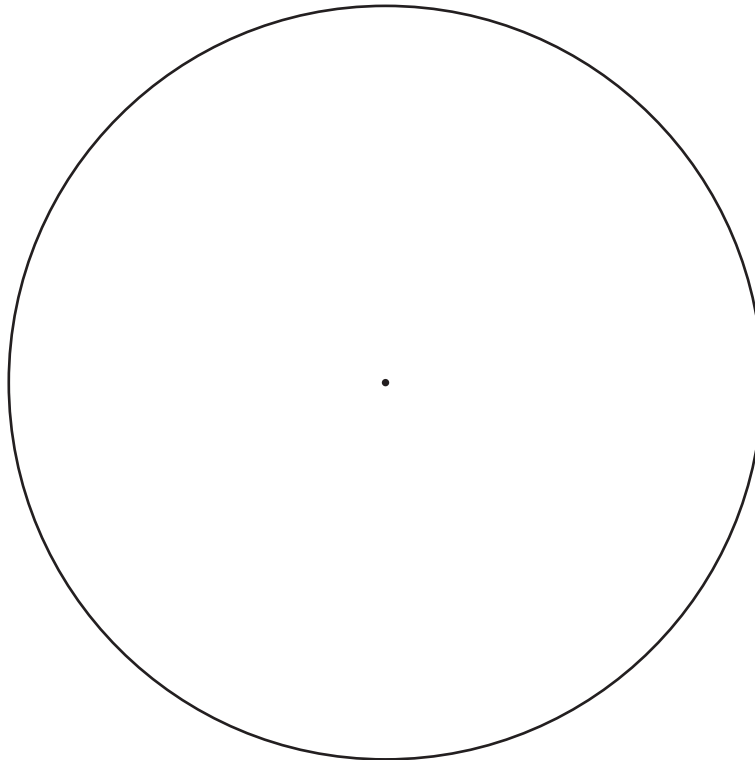
The table below shows the number of students in the whole school getting each grade.

Grade	Number of students	Angle on a pie chart
A	5	
B	15	
C	40	
D	20	
E	10	
Totals	90	

- (i)** Complete the table above by calculating the angles required to draw a pie chart. [2]

- (ii)** Using the circle at the top of the opposite page, draw an accurate pie chart to show the data in the table.

Label the sectors A, B, C, D and E.



[3]

(iii) What is the probability that a student chosen at random from the group taking the examination was awarded

(a) grade C,

Answer(b)(iii)(a) [1]

(b) grade D or grade E?

Answer(b)(iii)(b) [2]

41



Susan writes the letters of her name on five cards.

One of the five cards is chosen at random.

Find the probability that the letter on the card is

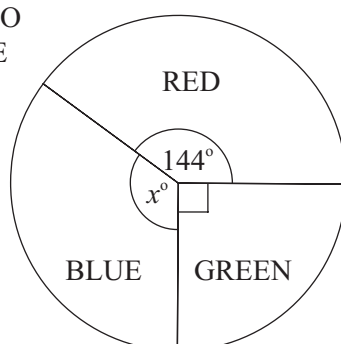
(a) S, Answer (a)..... [1]

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

4 A country has three political parties, the Reds, the Blues and the Greens.

The pie chart shows the proportion of the total vote that each party received in an election.

NOT TO
SCALE



(a) Find the value of x .

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

(b) What percentage of the votes did the Red party receive?

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

- 42 A dentist recorded the number of fillings that each of a group of 30 children had in their teeth. The results were

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

- (a) Complete this frequency table.

Number of fillings	Frequency
0	
1	
2	
3	
4	
5	
6	

[2]

- (b) What is the modal number of fillings?

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

- (c) Find the median number of fillings.

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

- (d) Work out the mean number of fillings.

Answer (d) [2]

- (e) One of these children is chosen at random.
Find the probability that this child has

- (i) exactly one filling,

Answer (e)(i) [1]

- (ii) more than three fillings.

Answer (e)(ii) [1]

- (f) These 30 children had been chosen from a larger group of 300 children. Estimate how many in the larger group have no fillings in their teeth.

Answer (f) [1]

- 43** Fifty students take part in a quiz.
The table shows the results.

Number of correct answers	5	6	7	8	9	10	11	12
Number of students	4	7	8	7	10	6	5	3

- (a)** How many students had 6 correct answers?

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

- (b)** How many students had less than 11 correct answers?

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

- (c)** Find

- (i)** the modal number of correct answers,

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

- (ii)** the median number of correct answers,

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

- (iii)** the mean number of correct answers.

Answer(c)(iii)..... [3]

- (d)** A bar chart is drawn to show the results.
The height of the bar for the number of students who had 5 correct answers is 2 cm.
What is the height of the bar for the number of students who had 9 correct answers?

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

- (e) A pie chart is drawn to show the results.
What is the angle for the number of students who had 11 correct answers?

Answer(e)..... [2]

- (f) The students who had the most correct answers shared a top prize of \$22.50.
How much did each of these students receive?

Answer(f) \$..... [2]

- (g) Work out the percentage of students who had **less than** 7 correct answers.

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

- (h) A student is chosen at random from the fifty students.
What is the probability that this student had

- (i) exactly 10 correct answers,

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

- (ii) at least 10 correct answers,

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

- (iii) more than 1 correct answer?

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

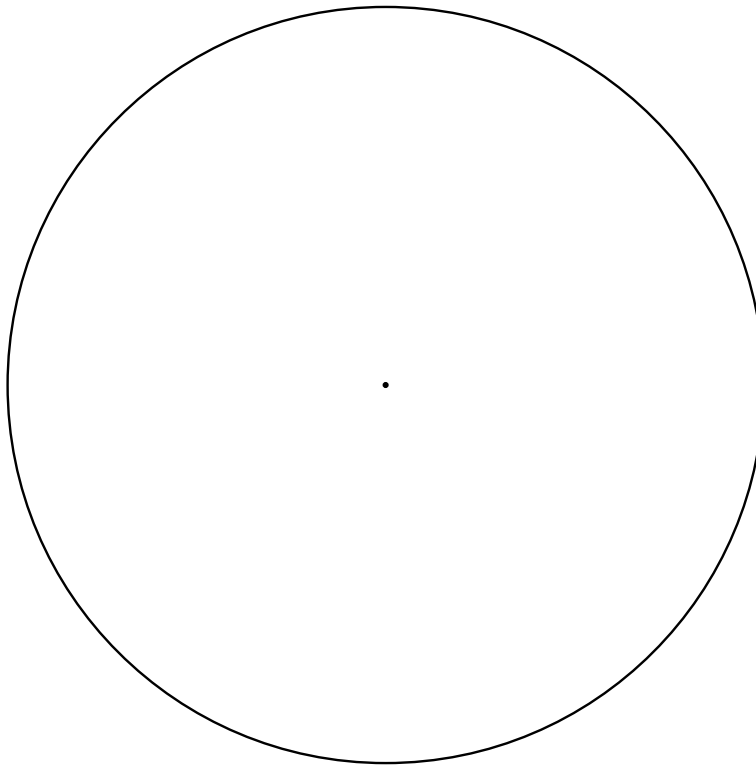
- 44 (a)** The results of the school's senior football team during a year are recorded, using W for a win, L for a loss and D for a draw. They are:

L L W D L W L W
 L L D L L W W L
 W L L W D L L W

- (i)** Complete the table below to show these results.

Then display this information in the pie chart below.

	Frequency	Pie chart angle
W		
L		
D		
TOTAL		360°



[6]

- (ii)** The team play another match.

Based on the results above, what is the probability that they will win?

Answer (a)(ii) [1]

- (b)** The probability that the school's junior team wins is 0.45 and the probability that it loses is 0.35. What is the probability of a draw?

Answer (b) [2]