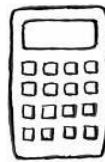


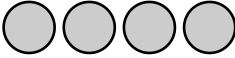
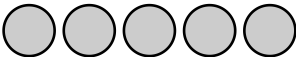


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
Teacher
Assessment



Section A Pictograms, Bar Charts & Frequency Diagrams Grade E → C

1. The pictogram shows the average number of hours of sunshine per day in Tenerife for five months.

Month		Average hours per day
May		8
June		10
July		
August		12
September		9

- (a) How many hours of sunshine does the symbol  represent?

Answer hours

(1)

- (b) Fill in the average number of hours of sunshine per day for July.

(1)

- (c) Which month has the greatest average number of hours of sunshine?

Answer

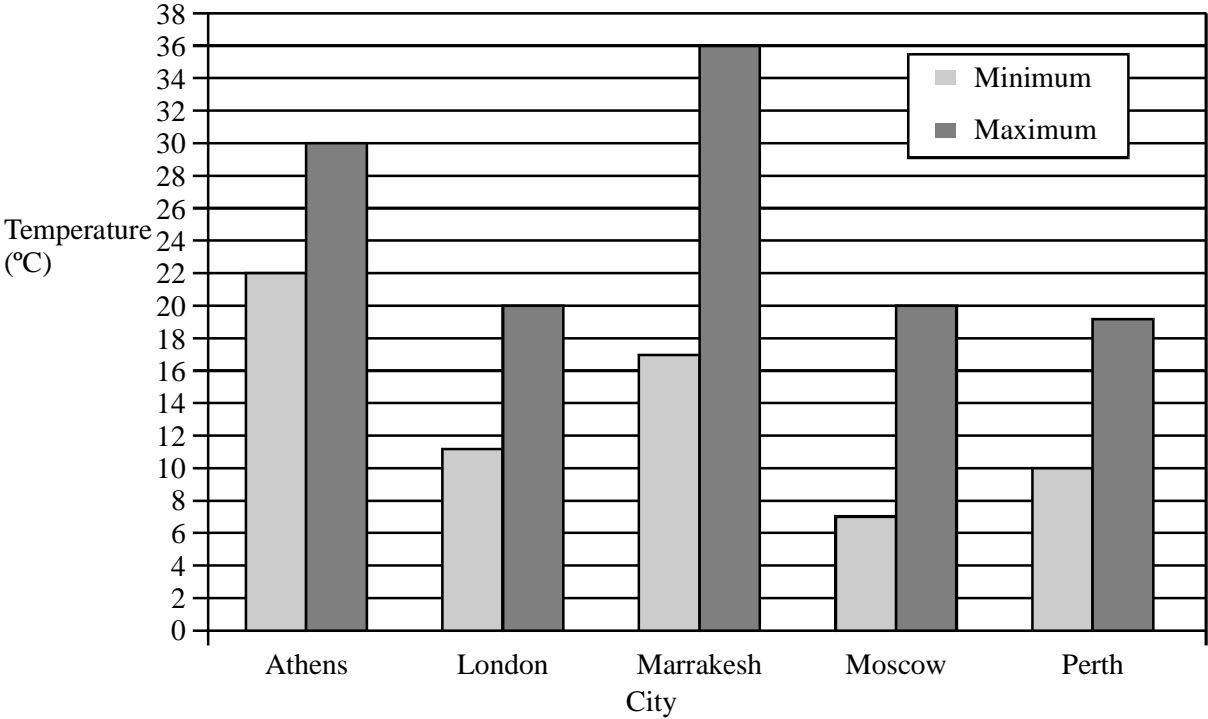
(1)

- (d) Complete the pictogram for September.

(1)

(Total 4 marks)

2. The diagram shows the minimum and maximum temperature, in °C, for one day in June in five cities.



(a) Which two cities have the same **maximum** temperature?

Answer

(1)

(b) Work out the difference between the minimum and maximum temperature in

(i) Athens,

.....

Answer °C

(ii) Perth.

.....

Answer °C

(2)

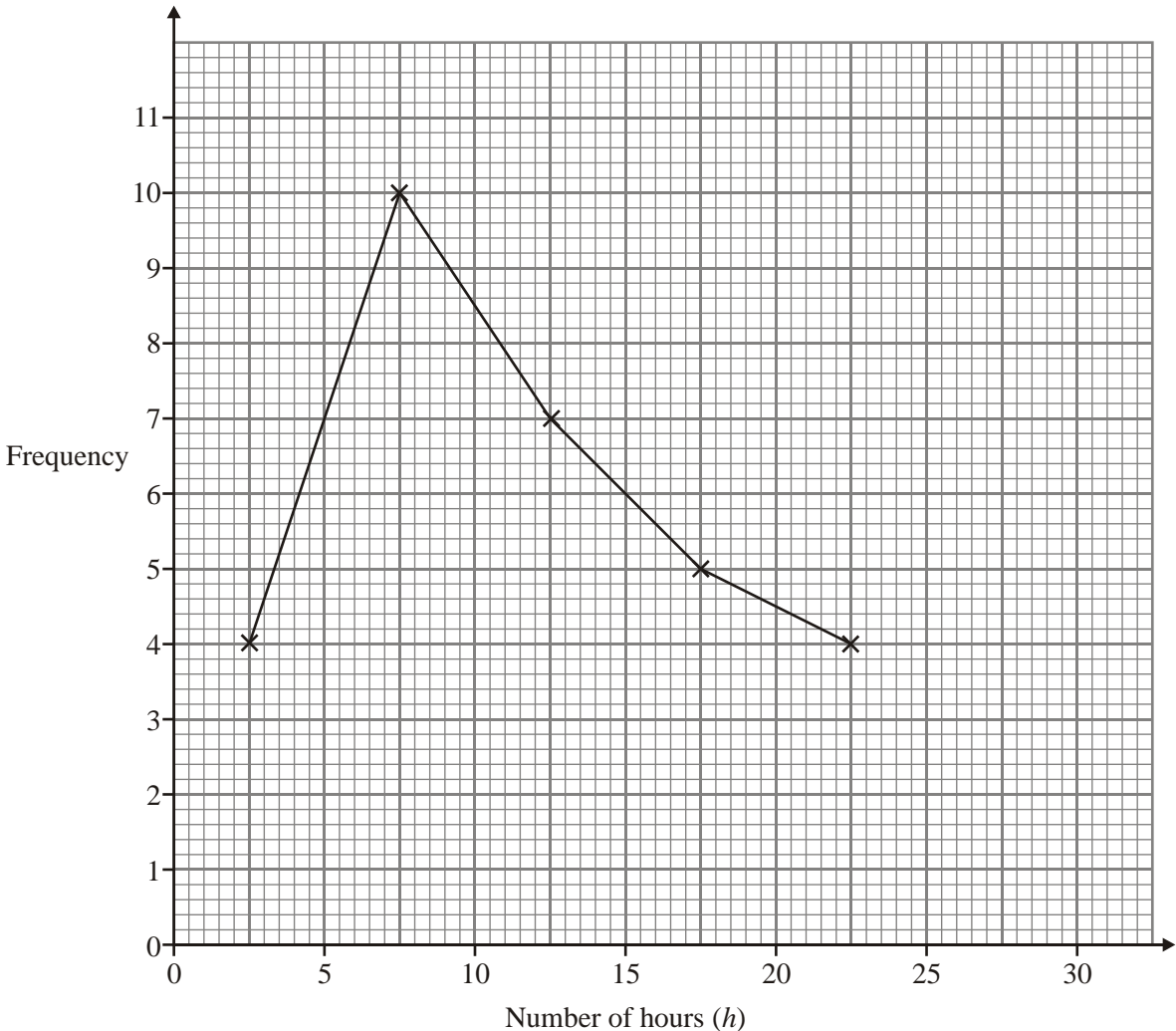
(c) Mike says the minimum temperature is always about half the maximum temperature for each city. Give an example to show that Mike is wrong. Give a reason for your choice.

.....

(2)

(Total 5 marks)

3. The frequency polygon shows the number of hours of television watched each week by 30 teachers.



(a) One of the teachers is picked at random.
 What is the probability that this teacher watches more than 15 hours of television each week?

.....

Answer

(2)

- (b) The number of hours of television watched each week by 30 students is shown below.

Number of hours (h)	Frequency
$0 < h \leq 5$	1
$5 < h \leq 10$	2
$10 < h \leq 15$	7
$15 < h \leq 20$	9
$20 < h \leq 25$	7
$25 < h \leq 30$	4

On the same grid draw a frequency polygon to show this information.

(2)

- (c) Give **two** comparisons between the number of hours of television watched by these teachers and students.

Comparison 1

.....

.....

Comparison 2

.....

.....

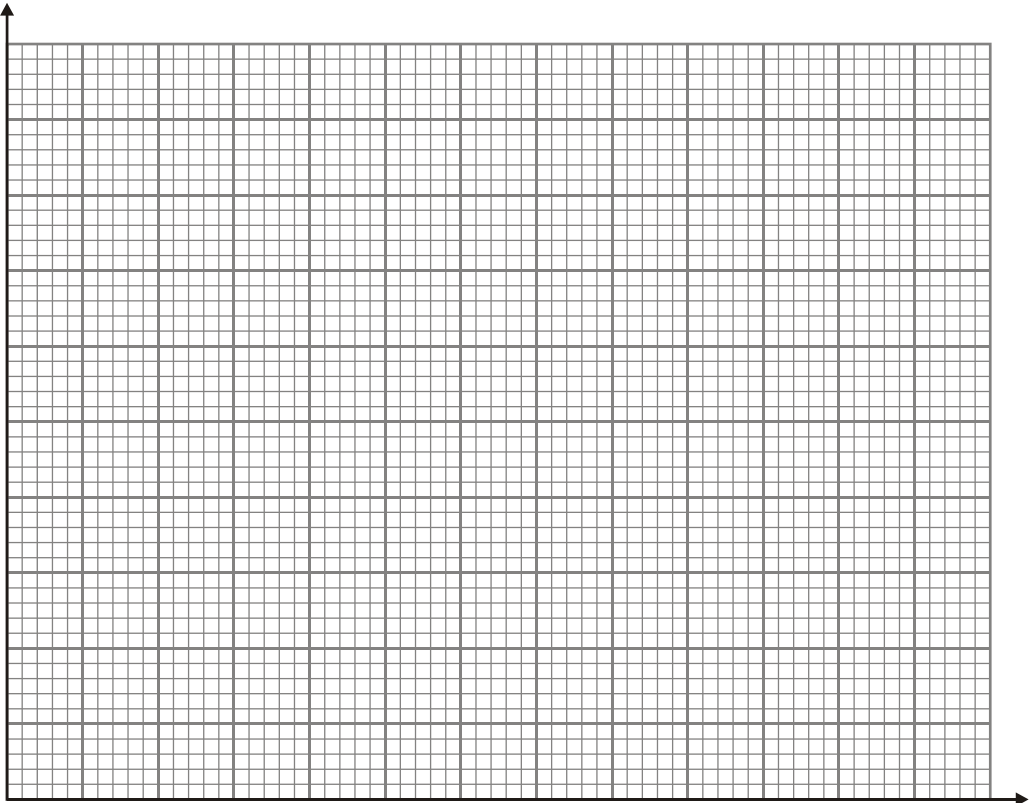
(2)

(Total 6 marks)

4. The frequency table shows the costs of car insurance premiums paid by 200 people.

Insurance premium, £ x	Frequency
$200 < x \leq 400$	34
$400 < x \leq 600$	52
$600 < x \leq 800$	76
$800 < x \leq 1000$	26
$1000 < x \leq 1200$	12

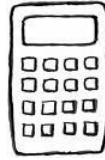
Draw a frequency diagram to represent this data.



(Total 3 marks)

Success:

Target:



Section B **Pie Charts** **Grade D / C**

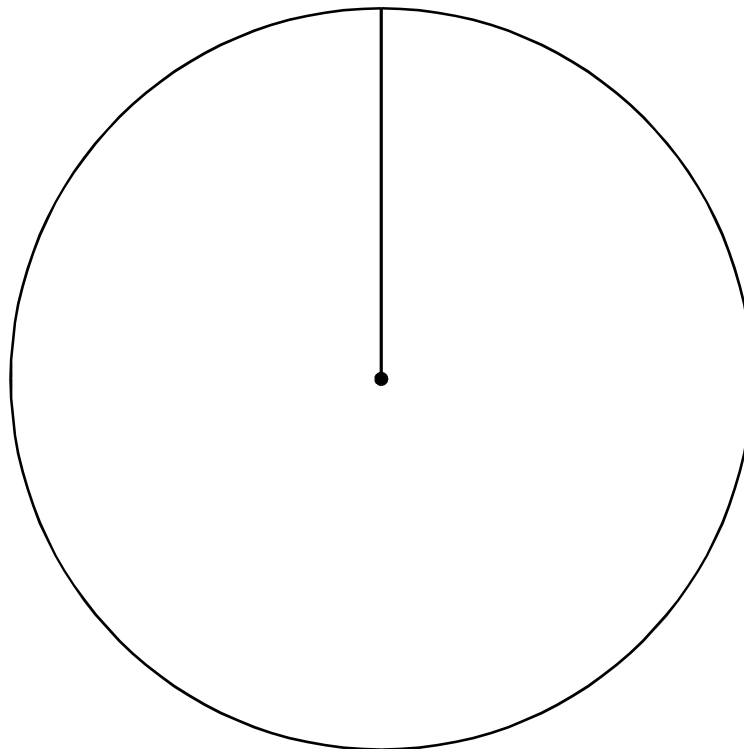
1. Billy asks 40 students how they travel to college. The table shows the results.

Method of travel	Frequency
Car	20
Bus	10
Walk	6
Other	4

(a) Draw and label a pie chart to represent the information in the table.

.....

.....



(4)

(b) Explain why Billy's results may not show the correct proportions for the whole college.

.....

.....

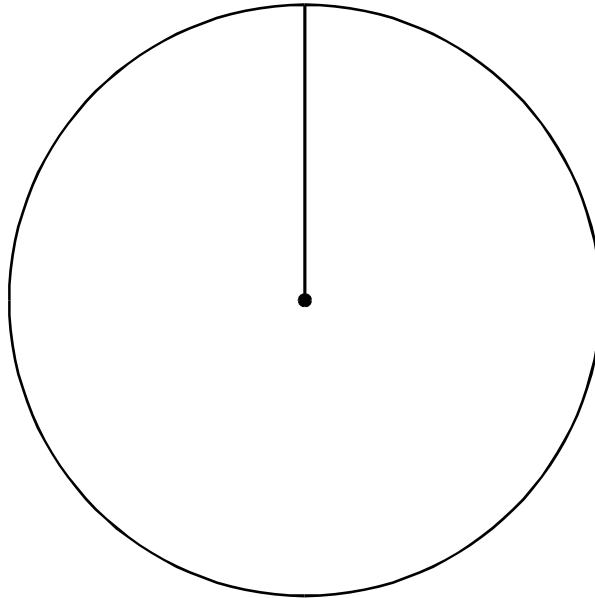
(1)

(Total 5 marks)

2. A school entered 144 pupils for GCSE Mathematics as shown in the table.

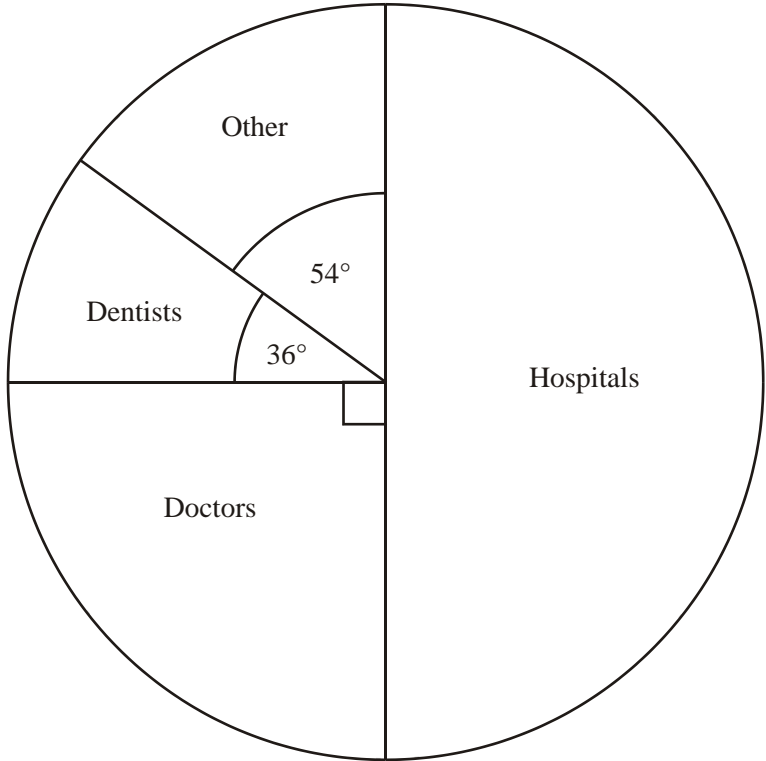
Tier	Number of pupils
Foundation	46
Intermediate	70
Higher	28

Complete the pie chart for the school GCSE Mathematics entry. Label each sector clearly.



(Total 3 marks)

3. The pie chart shows the proportions of complaints made about different parts of the Health Service last year.



(a) What fraction of complaints were made about doctors?

.....

Answer

(2)

(b) There were 400 complaints made about hospitals.

How many complaints were made altogether?

.....

.....

Answer

(2)

(c) Work out the number of complaints made about dentists.

.....

.....

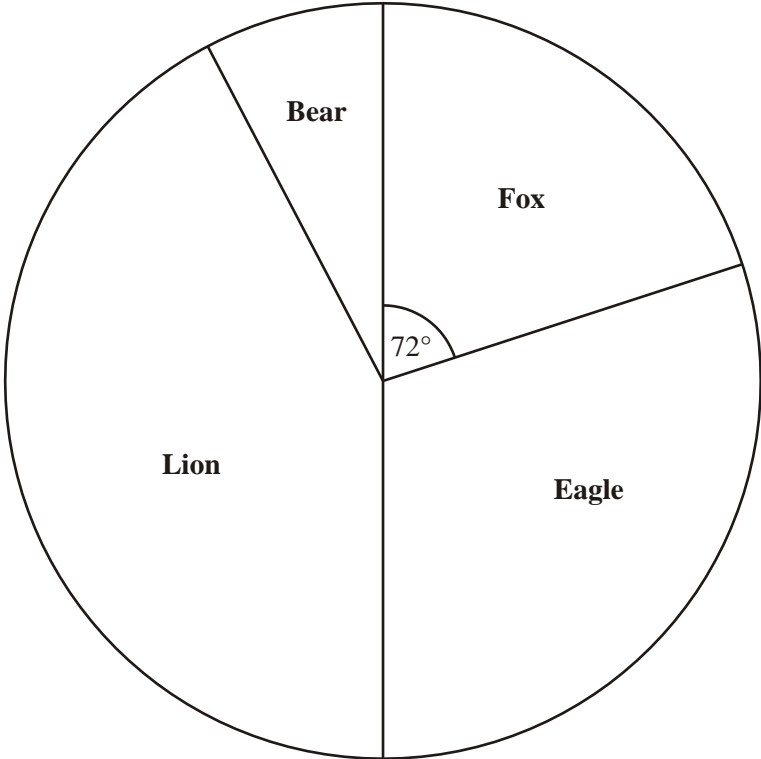
Answer

(3)

(Total 7 marks)

4. A football club is choosing a new mascot.

The club asks 400 supporters to help choose the mascot.
 The pie chart shows their choices.



(a) How many of the 400 supporters choose the fox?

.....

Answer

(3)

(b) The number of supporters who choose the lion is 168.
 What percentage of the 400 supporters is this?

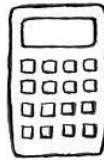
.....

Answer %

(2)(Total 5 marks)

Success:

Target:



Section C **Stem and Leaf Diagrams** **Grade D / C**

1. A taxi-driver keeps a record of how much he spends on petrol each week.
The amounts, in pounds, are

30 24 32 15 28 9 18
24 23 36 22 14 19 41

- (a) Draw an ordered stem-and-leaf diagram to show these amounts.
Remember to complete the key.

.....
.....
.....
.....
.....

Key | represents £



(3)

- (b) Work out the range of these amounts.

.....
.....

Answer £

(1)

(Total 4 marks)

2. The number of pupils absent from a school each week is listed below.

125 134 121 111 105 109 118 122 119 126 133

(a) Show the data in an ordered stem-and-leaf diagram.

.....
.....
.....
.....

Key 12 | 5 represents 125 pupils



(3)

(b) Write down the median number of pupils absent.

.....

Answer

(1)

(Total 4 marks)

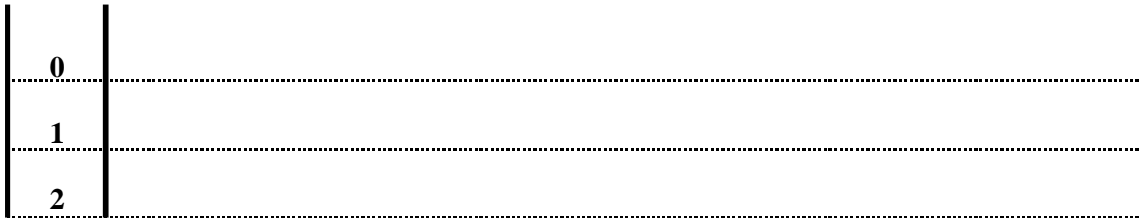
3. The temperature is recorded in 19 towns on one day.

9 14 21 15 2 10 11 17 7 24
23 18 5 11 4 20 18 23 4

(a) Draw a stem and leaf diagram to represent these data and complete the key.

.....

Key | | represents



(3)

(b) The median of these temperatures is 14.

The temperature of another town is then included.

(i) Write down a temperature which would reduce the median.

Answer

(1)

(ii) What temperature would reduce the median to 13?

.....

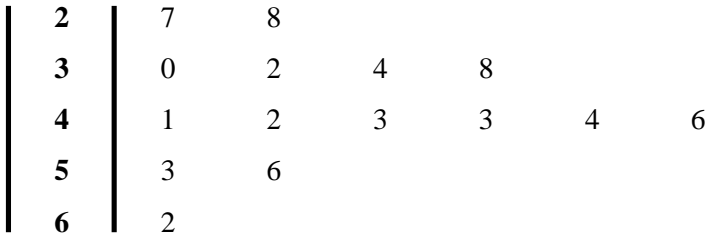
Answer

(1)

(Total 5 marks)

4. The stem and leaf diagram shows the ages, in years, of 15 members of a badminton club.

Key: | 2 | 7 means an age of 27 years



(a) How many members are aged over 40?

Answer (1)

(b) What is the median age of the members?

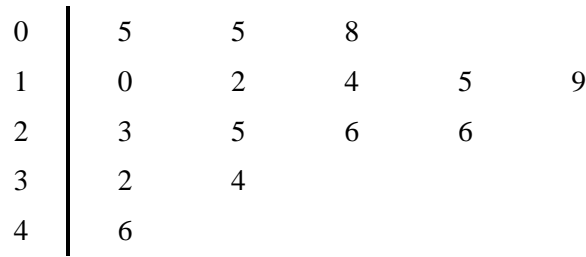
.....
 Answer years (1)

(c) What is the range of the ages?

.....
 Answer years (1)
(Total 3 marks)

5. The time taken, in minutes, by each of 15 pupils to travel to school, is shown in the ordered stem-and-leaf diagram.

Key 3 | 2 represents 32 minutes



- (a) How many pupils took less than 20 minutes to travel to school?

Answer pupils

(1)

- (b) What was the median number of minutes taken to travel to school?

Answer minutes

(1)

- (c) Another pupil takes 37 minutes to travel to school.

Tick the correct box to show what effect, if any, this has on

- (i) the median,

Decreases

Stays the same

Increases

- (ii) the range.

Decreases

Stays the same

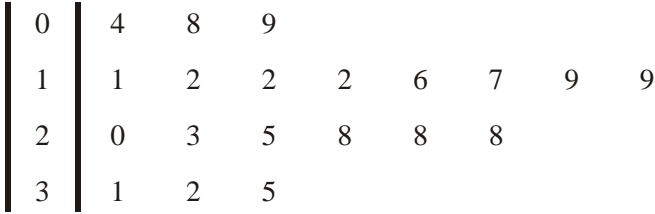
Increases

(2)

(Total 4 marks)

6. The ordered stem and leaf diagram shows the number of cameras sold each day, over a period of 20 days.

Key | 1 | 2 represents 12 cameras



The next day 28 cameras are sold.
Does the median increase, decrease or stay the same?
You **must** show your working.

.....

.....

.....

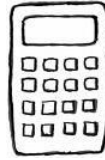
.....

.....

(Total 3 marks)

Success:

Target:

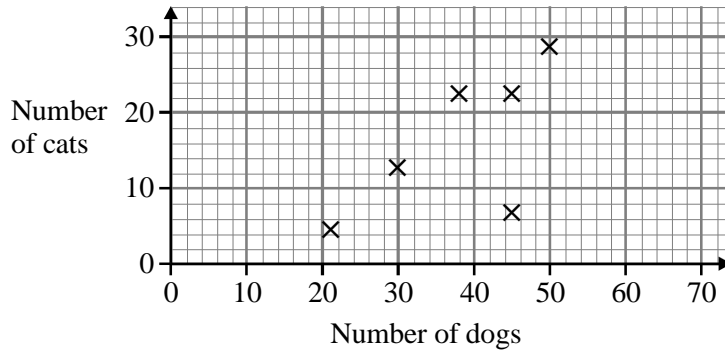


Section D

Scattergraphs

Grade B / A

1. The scatter graph shows the number of cats and the number of dogs in each of six villages.



- (a) Ayville has the lowest number of cats of the six villages.
Use the graph to find the number of cats in Ayville.

Answer

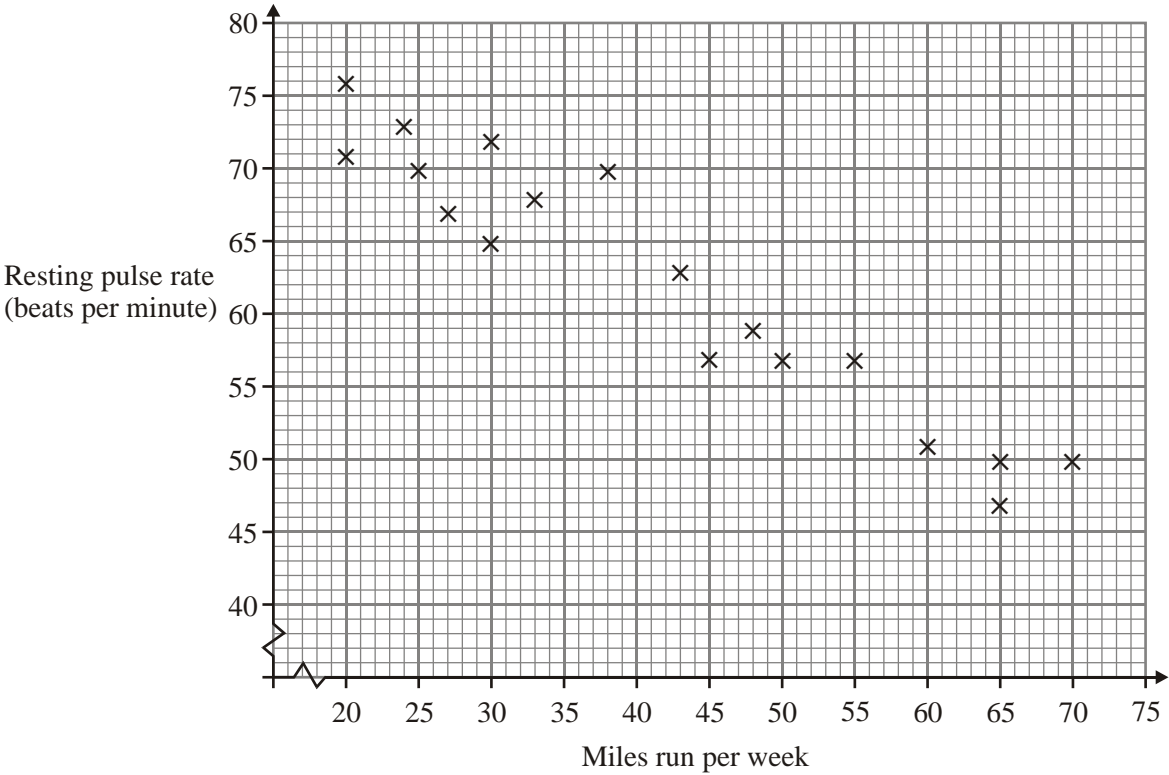
(1)

- (b) The point plotted for Beeville does not fit the general trend.
Circle the point for Beeville on the scatter graph.

(1)

(Total 2 marks)

2. Some runners recorded their resting pulse rates and miles run per week.



(a) How many runners have a resting pulse rate of 57 beats per minute?

Answer

(1)

(b) Draw a line of best fit.

(1)

(c) Predict the resting pulse rate of a runner who runs 40 miles per week.

Answer beats per minute

(1)

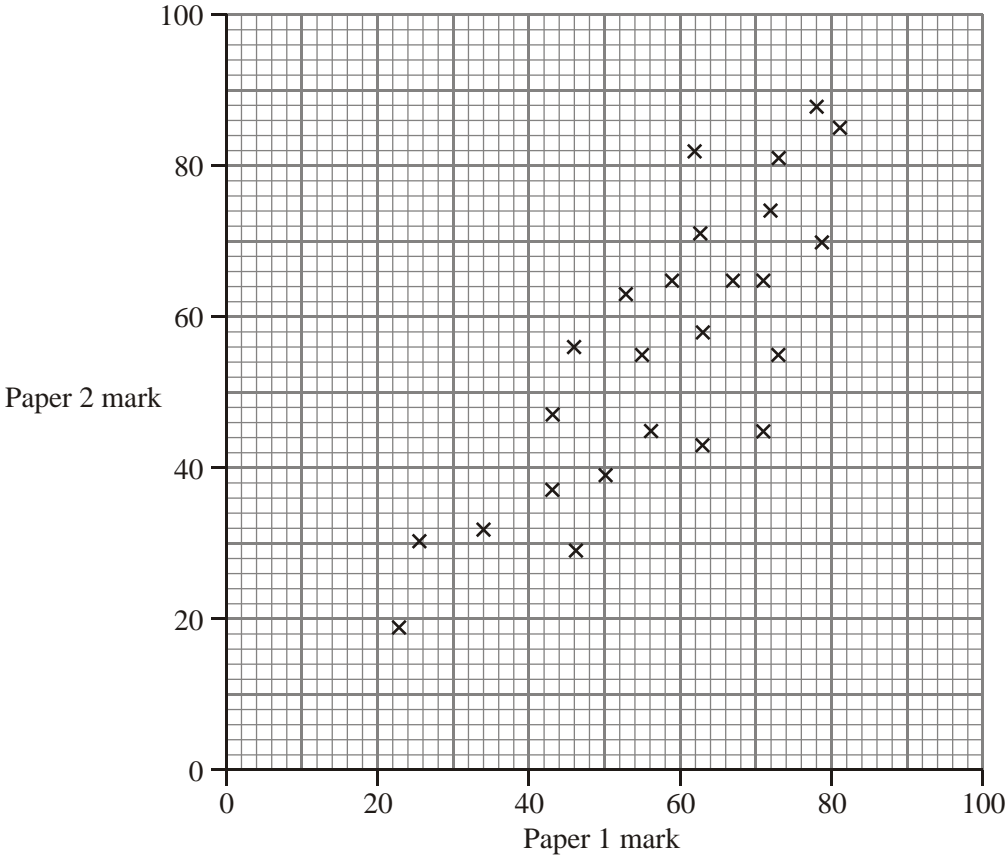
(d) Describe the relationship between the resting pulse rate and miles run per week.

.....

(1)

(Total 4 marks)

3. Mrs Millington gives her class two mock GCSE examination papers. The scatter graph shows the results.



(a) Write down the highest mark scored on Paper 2.

Answer marks

(1)

(b) Describe the relationship shown on the scatter graph.

.....

(1)

(c) Draw a line of best fit on the scatter graph.

(1)

(d) Kay was absent for Paper 2, but scored a mark of 56 on Paper 1. Use your line of best fit to estimate Kay's mark on Paper 2.

.....

Answer marks

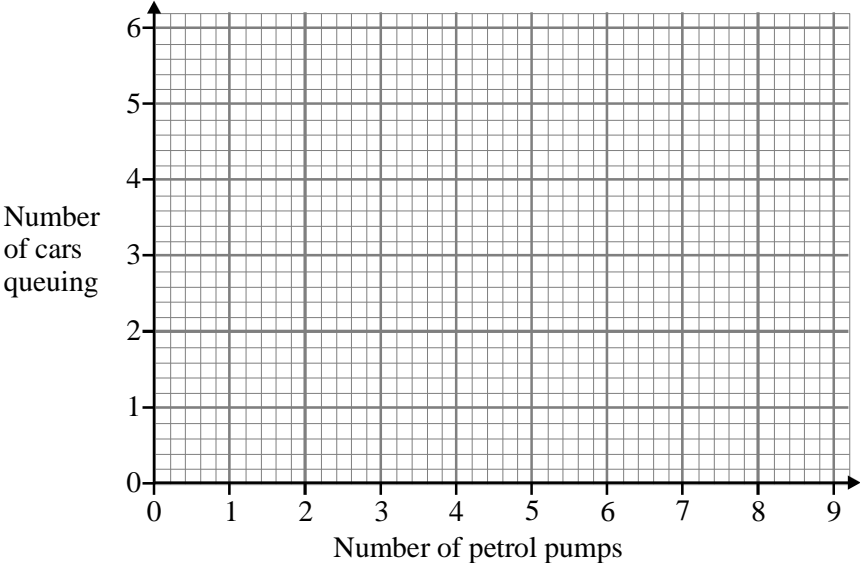
(1)

(Total 4 marks)

4. The table shows the number of petrol pumps and the number of cars queuing at midday at six garages.

Number of petrol pumps	3	4	6	4	3	5
Number of cars queuing	6	5	3	4	5	4

(a) Plot a scatter graph of these data on the axes below.



(2)

(b) Draw a line of best fit on your scatter graph.

(1)

(c) Use your line to estimate the number of cars queuing at a garage with 8 petrol pumps.

Answer

(1)

(d) Explain why your answer in part (c) may be unreliable.

.....

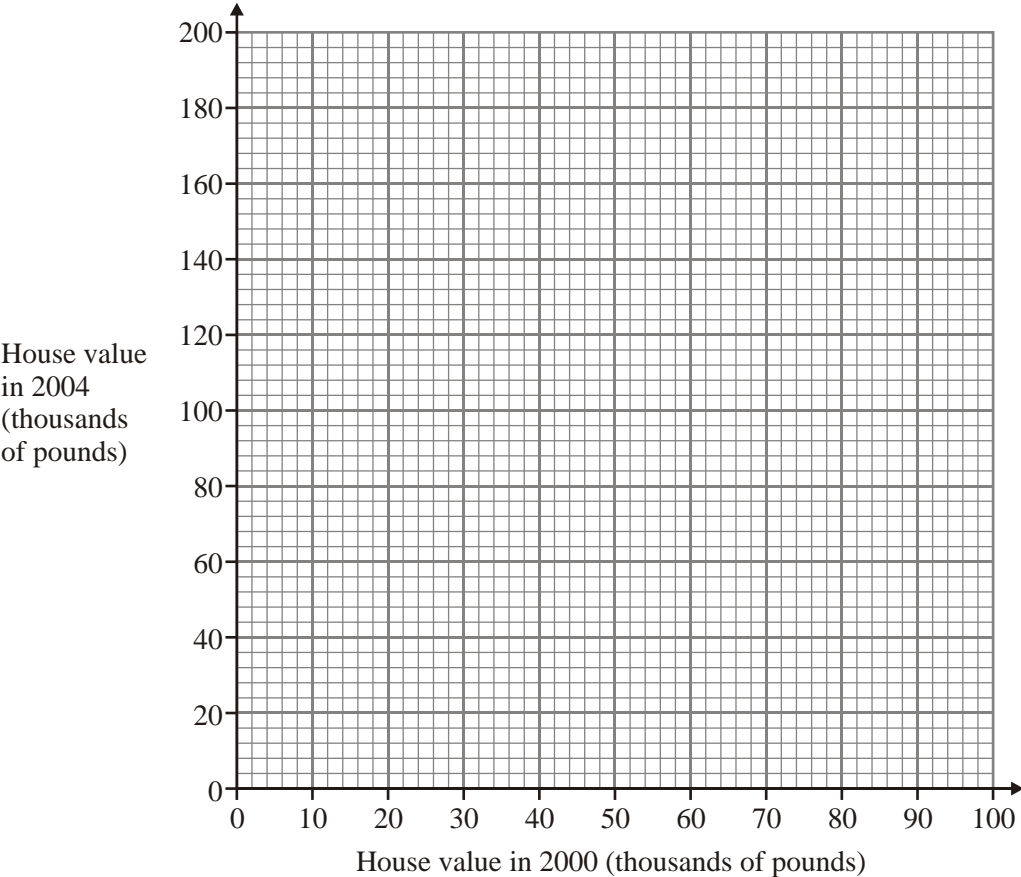
(1)

(Total 5 marks)

5. The value of six houses in 2000 is compared to the value of similar houses in 2004. Here are the results.

House value in 2000 (thousands of pounds)	20	30	40	60	70	90
House value in 2004 (thousands of pounds)	40	60	70	100	140	170

(a) Draw a scatter graph of these results.



(2)

(b) Describe the relationship shown in the scatter graph.

.....
.....

(1)

(c) In 2000 a house was valued at £80 000. Estimate the value of a similar house in 2004.

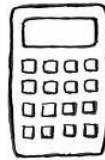
.....

Answer £

(2)(Total 5 marks)

Success:

Target:



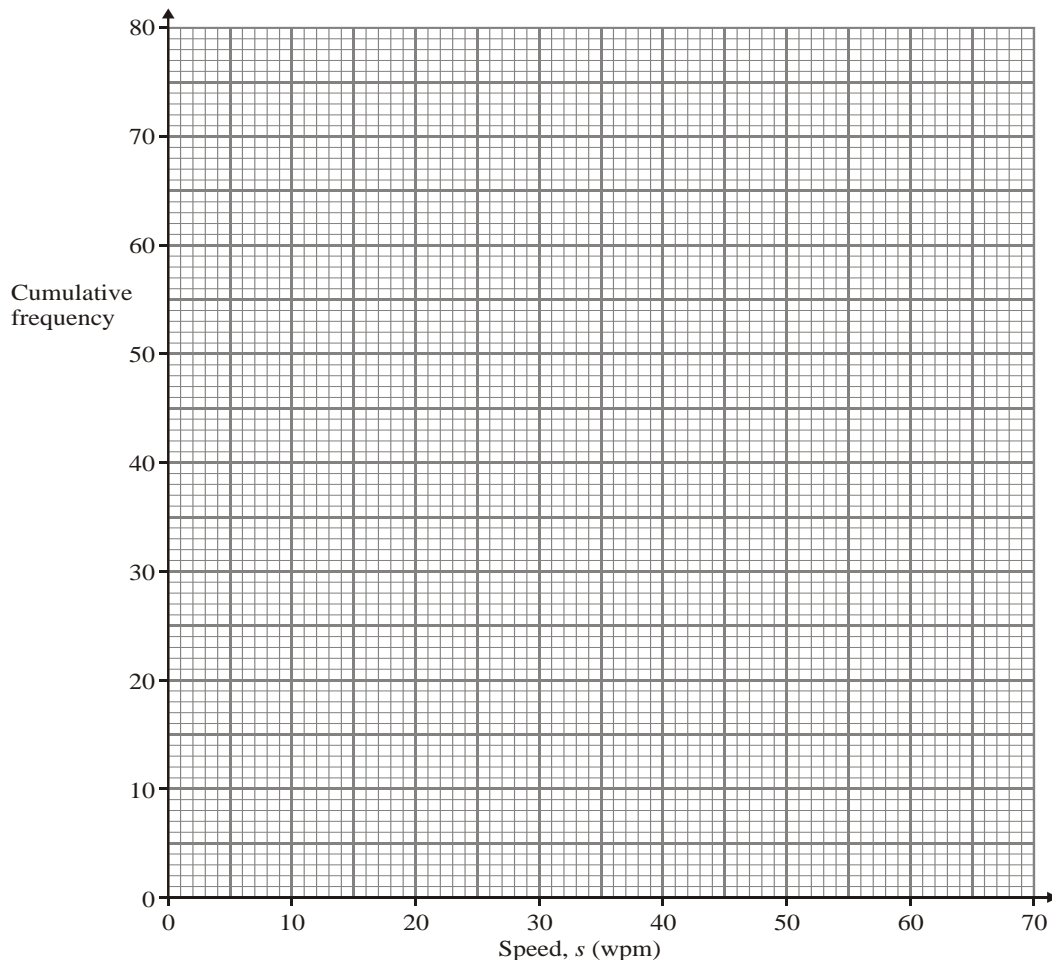
Section E Cumulative Frequency and Boxplots Grade B

1. A group of 80 trainee secretaries have their typing speeds tested. The table shows their results in words per minute (wpm).

Speed, s (wpm)	Number of typists
$20 \leq s < 30$	8
$30 \leq s < 40$	30
$40 \leq s < 50$	24
$50 \leq s < 60$	13
$60 \leq s < 70$	5

Speed, s (wpm)	Cumulative frequency
< 30	
< 40	
< 50	
< 60	
< 70	

- (a) (i) Complete the cumulative frequency column in the table. (1)
 (ii) Draw a cumulative frequency diagram on the grid below.



(3)

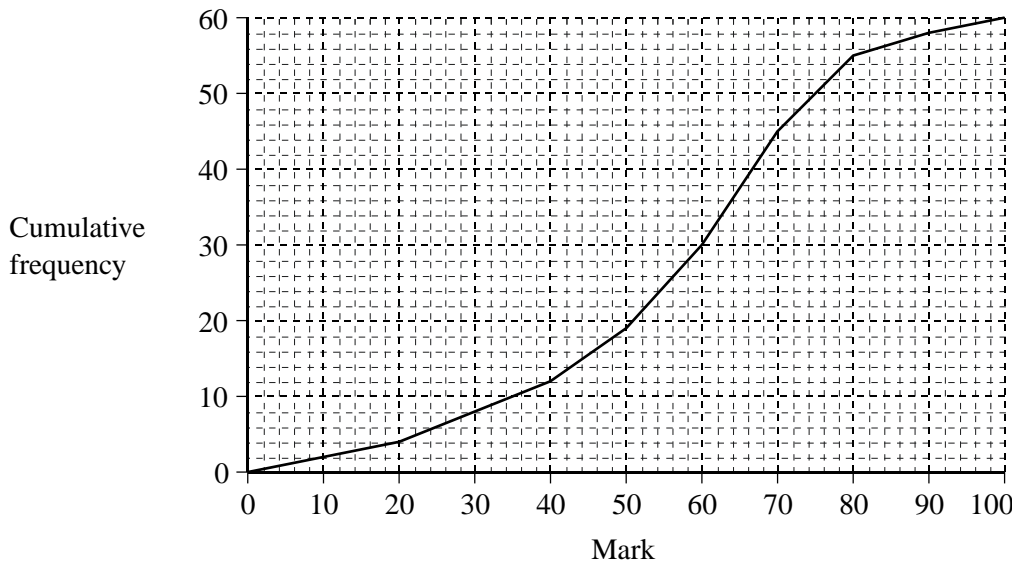
- (b) Use your diagram to estimate the interquartile range.

.....

Answer wpm

(2)(Total 6 marks)

2. The cumulative frequency diagram shows the distribution of marks for 60 students in a science examination.



(a) Estimate

(i) the median mark

.....

Answer

(1)

(ii) the interquartile range of the marks.

.....

.....

Answer

(2)

(b) The pass mark for the examination is 55 marks.
How many students passed the examination?

.....

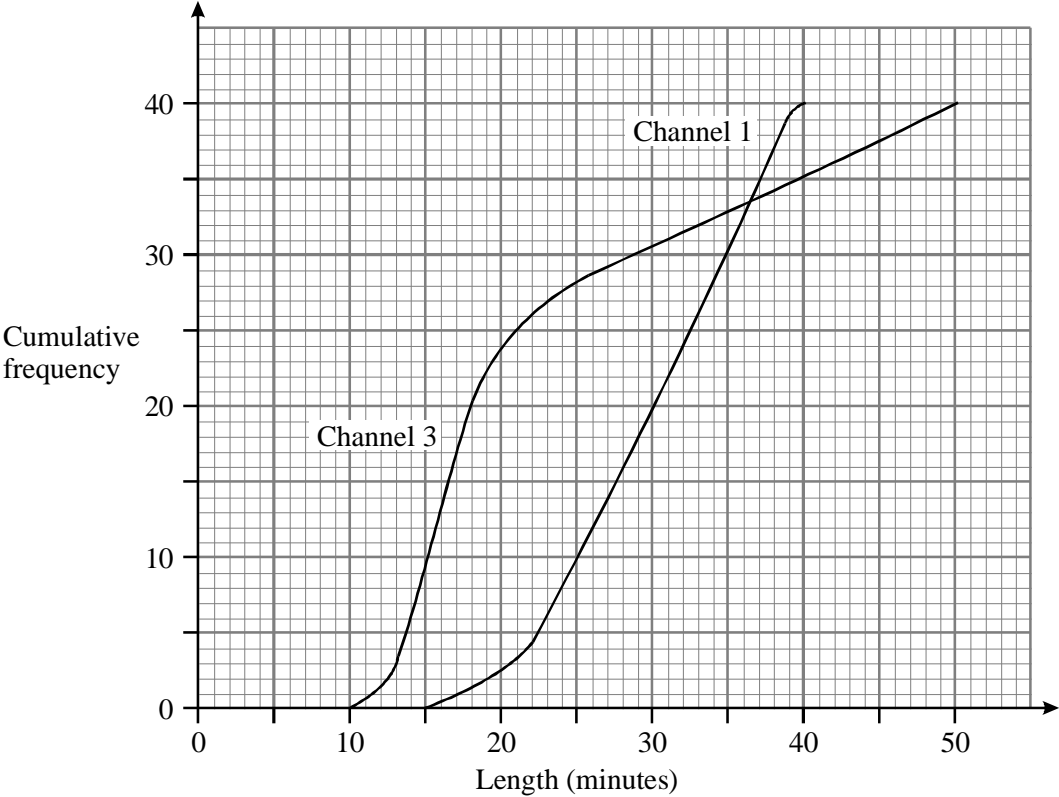
.....

Answer

(2)

(Total 5 marks)

3. The cumulative frequency graphs represent the lengths of 40 programmes on Channel 1 and 40 programmes on Channel 3.



(a) What is the difference between the median programme lengths for the two channels?

.....

Answer minutes

(2)

(b) How many programmes in total were more than 25 minutes long?

.....

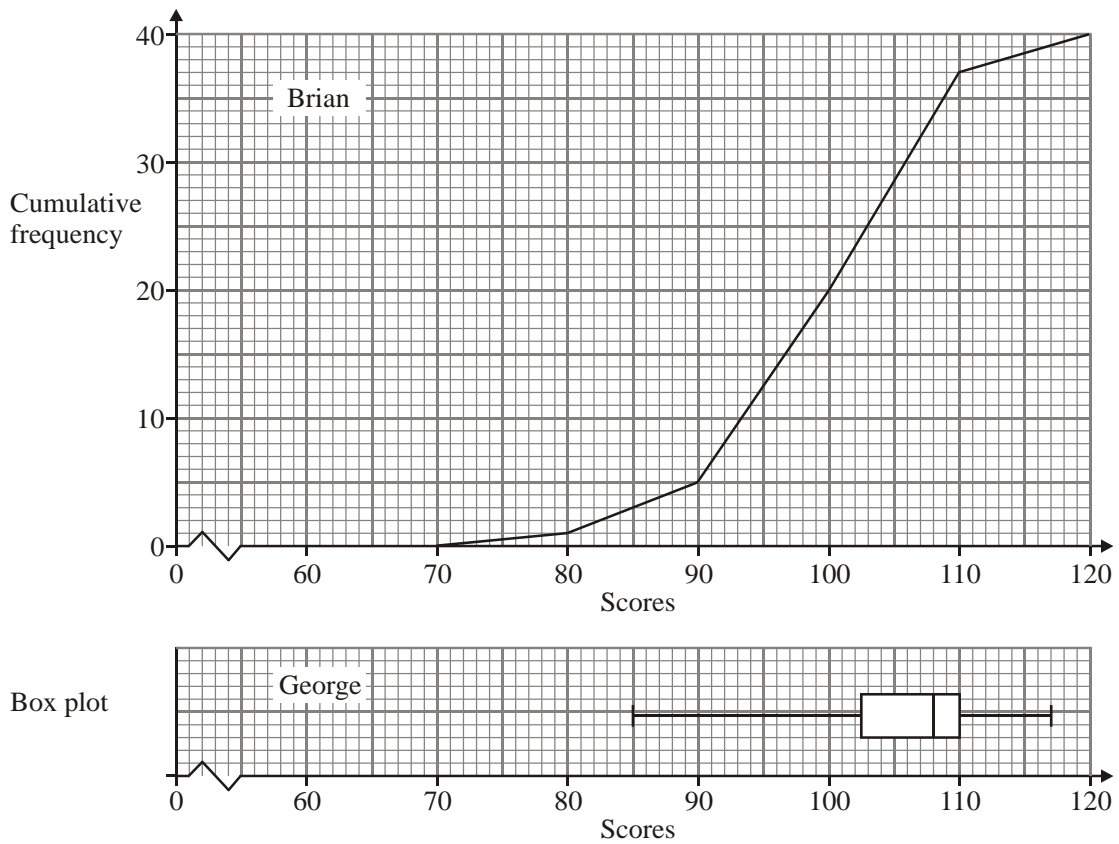
.....

Answer

(3)

(Total 5 marks)

4. Brian and George played 40 games of golf. The cumulative frequency diagram shows information about Brian's scores. The box plot shows information about George's scores.



(a) Showing your method clearly, find

(i) Brian's median score

Answer

(1)

(ii) Brian's inter-quartile range.

Answer

(2)

(b) Use the cumulative frequency diagram and the box plot to answer the following.

(i) Which player is the more consistent in his scoring? Give a reason for your choice.

.....
.....

(1)

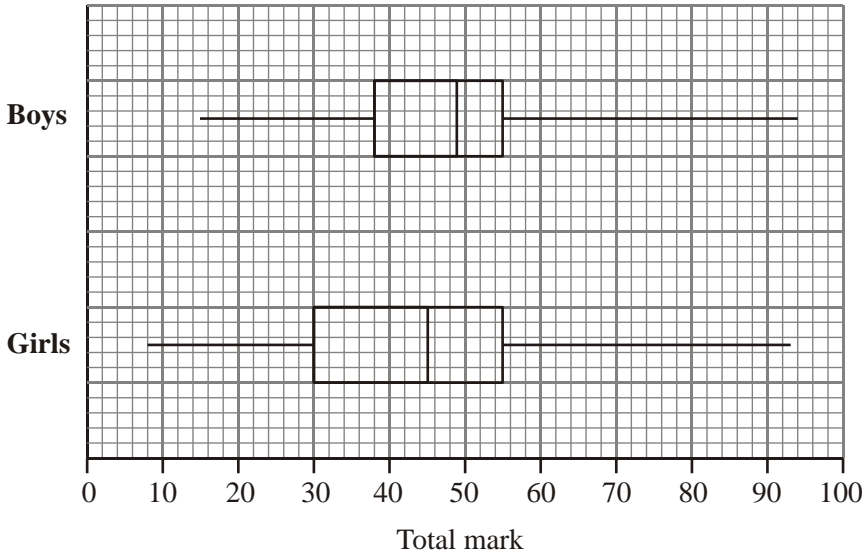
(ii) The winner of a game of golf is the player who has the lowest score. Who do you think is the better player? Give a reason for your choice.

.....
.....

(1)

(Total 5 marks)

5. 56 boys and 52 girls took an English test.
 The box plots show the distributions of their marks.



Give **two** differences between the boys' marks and the girls' marks.

Difference 1

.....

.....

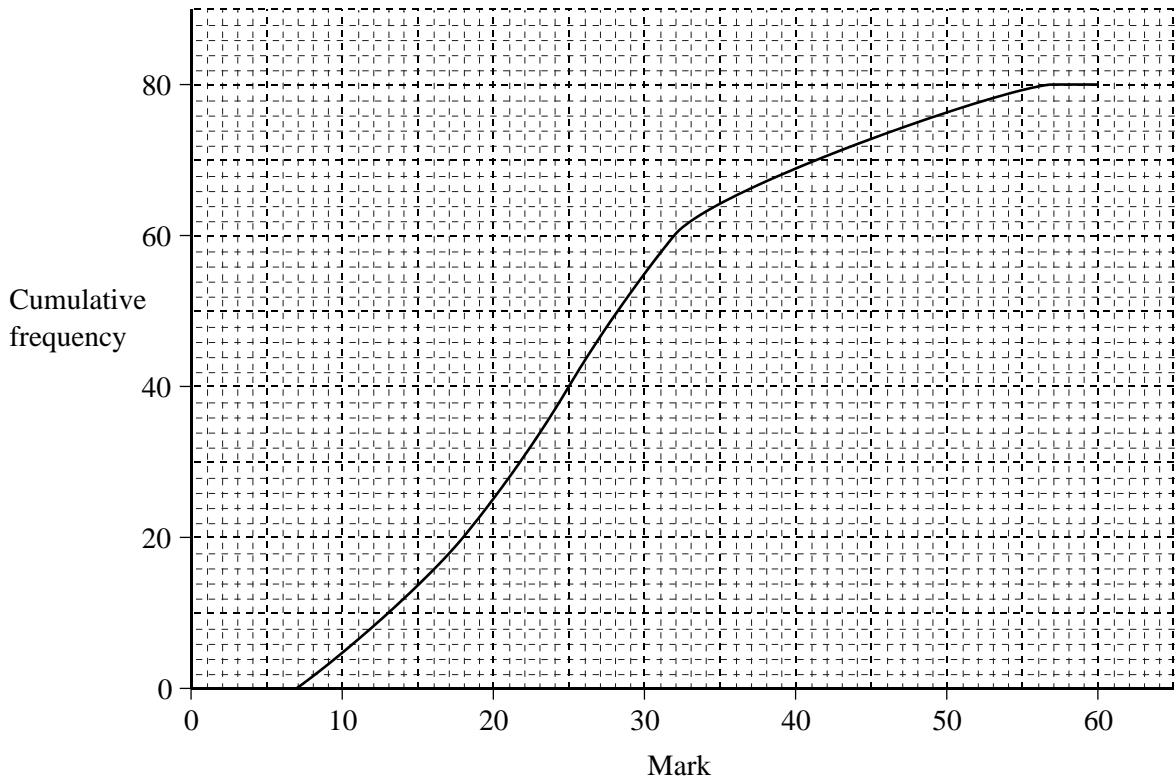
Difference 2

.....

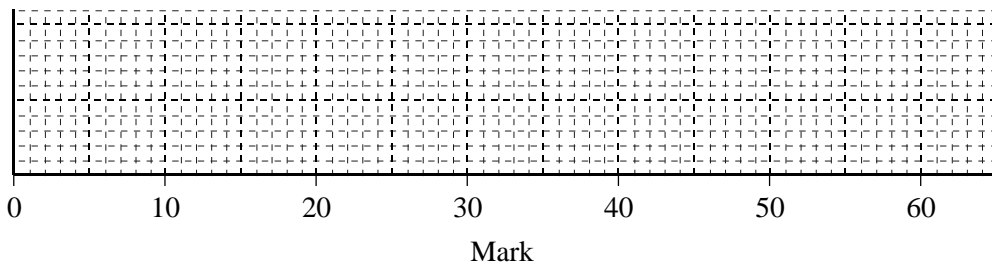
.....

(Total 2 marks)

6. The cumulative frequency diagram shows the distribution of marks for 80 students in a Geography examination.



- (a) The lowest mark is 8.
 The highest mark is 57.
 Draw a box plot for this data.



(3)

- (b) What percentage of students scored less than the lower quartile mark?

.....

Answer%

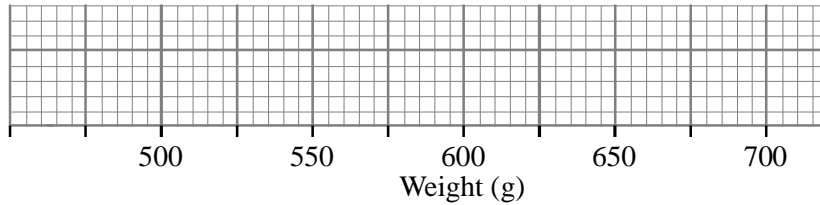
(1)

(Total 4 marks)

7. The weights of 80 bags of rice are measured. The table summarises the results.

Minimum	480 g
Lower quartile	500 g
Median	540 g
Upper quartile	620 g
Maximum	720 g

(a) Draw a box plot to show this information.



(3)

(b) Write down the interquartile range for these data.

Answer

(1)

(c) How many bags weigh

(i) less than 480 g

Answer

(1)

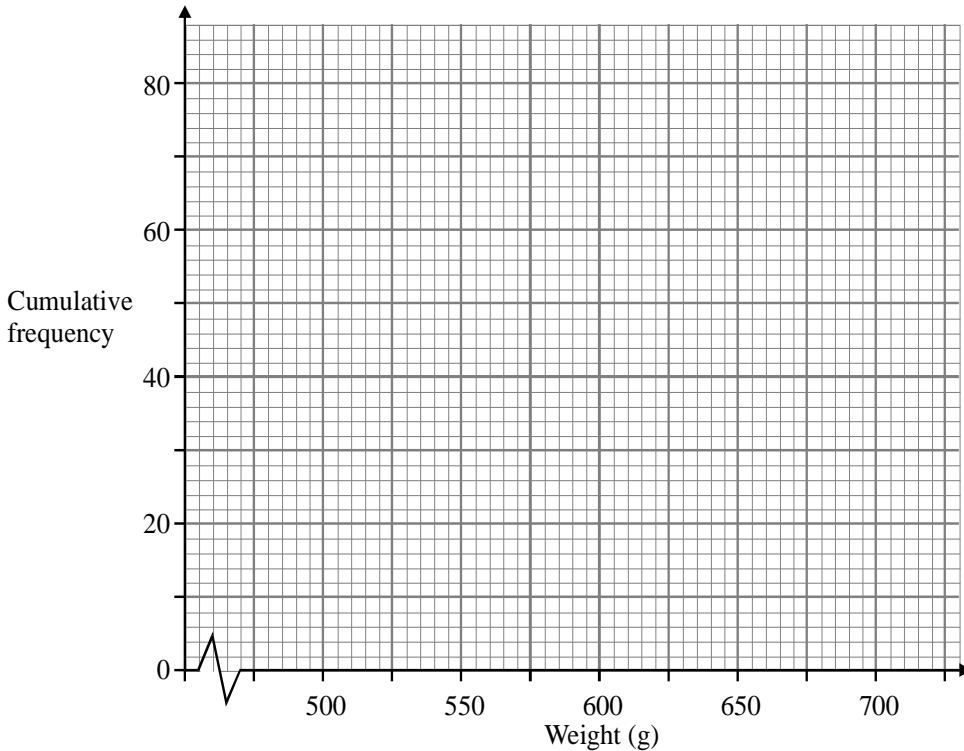
(ii) less than 500 g

Answer

(1)

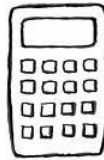
(d) Draw a cumulative frequency diagram to show the information.

(3)(Total 6 marks)



Success:

Target:



Section F **Histograms** **Grade A / A***

1. The times taken by 60 girls to run a race are summarised in the table.

Time t (seconds)	Frequency		
$200 \leq t < 300$	13		
$300 \leq t < 380$	40		
$380 \leq t < 450$	7		

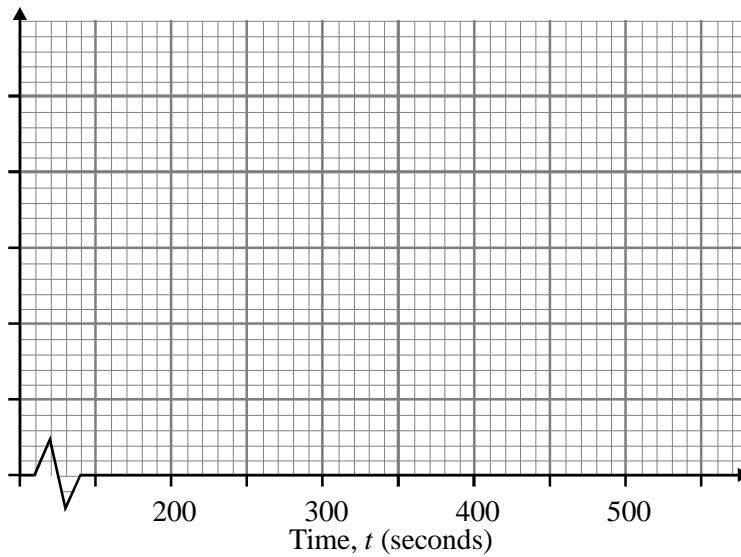
(a) Draw a histogram to represent the times taken by the girls.
You may use the empty columns in the table if you wish.

.....

.....

.....

.....



(3)

(b) Estimate how many girls took more than 350 seconds to run the race.

.....

.....

Answer

(2)

(Total 5 marks)

2. The table summarises the playing times of 30 CDs.

Playing time, t (min)	Frequency
$30 \leq t < 40$	4
$40 \leq t < 60$	8
$60 \leq t < 90$	15
$90 \leq t < 120$	3

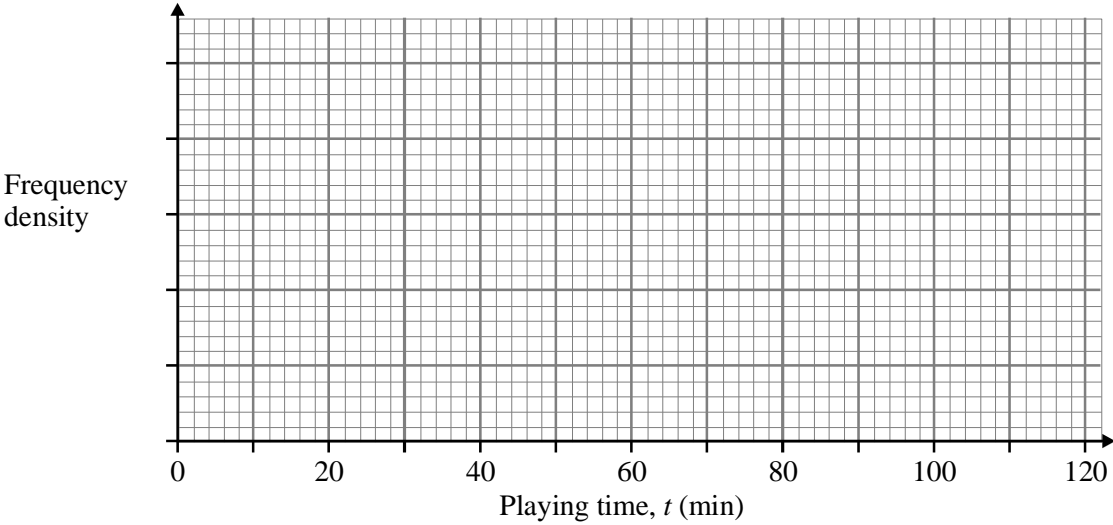
(a) Draw a histogram to represent these playing times.

.....

.....

.....

.....



(3)

(b) Calculate an estimate of the number of CDs with a playing time of between 45 minutes and 90 minutes.

.....

.....

.....

Answer

(2)

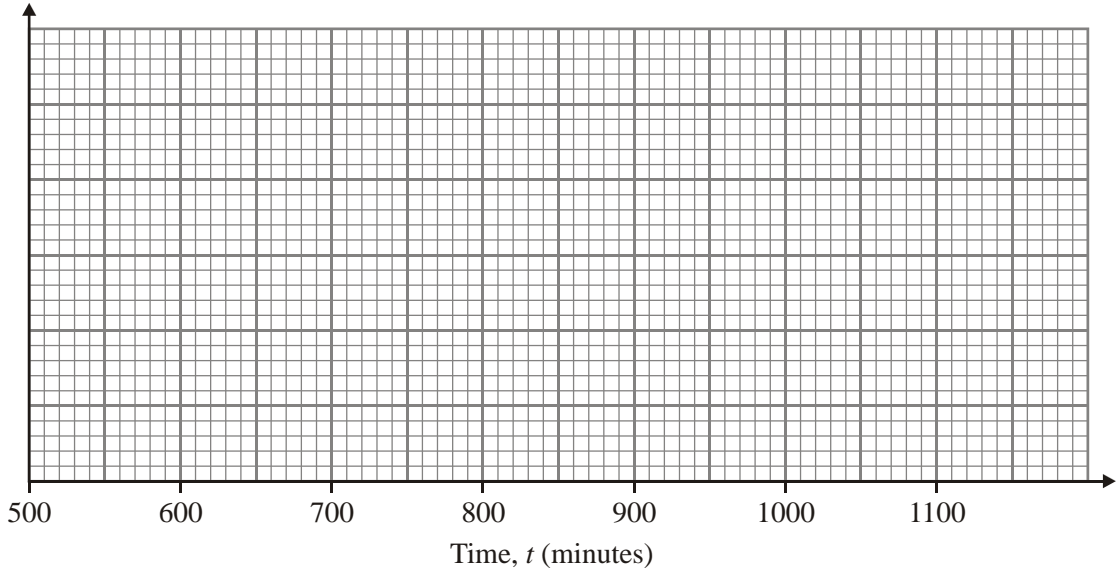
(Total 5 marks)

3. Batteries are tested by putting them into toys and seeing how long they last.

Here are the results of 60 tests.

Time, t (minutes)	Frequency
$500 \leq t < 600$	8
$600 \leq t < 700$	15
$700 \leq t < 750$	10
$750 \leq t < 950$	18
$950 \leq t < 1150$	9

(a) Draw a histogram to show this information.



(3)

(b) Use your histogram, or otherwise, to estimate the median life of a battery.

.....

.....

.....

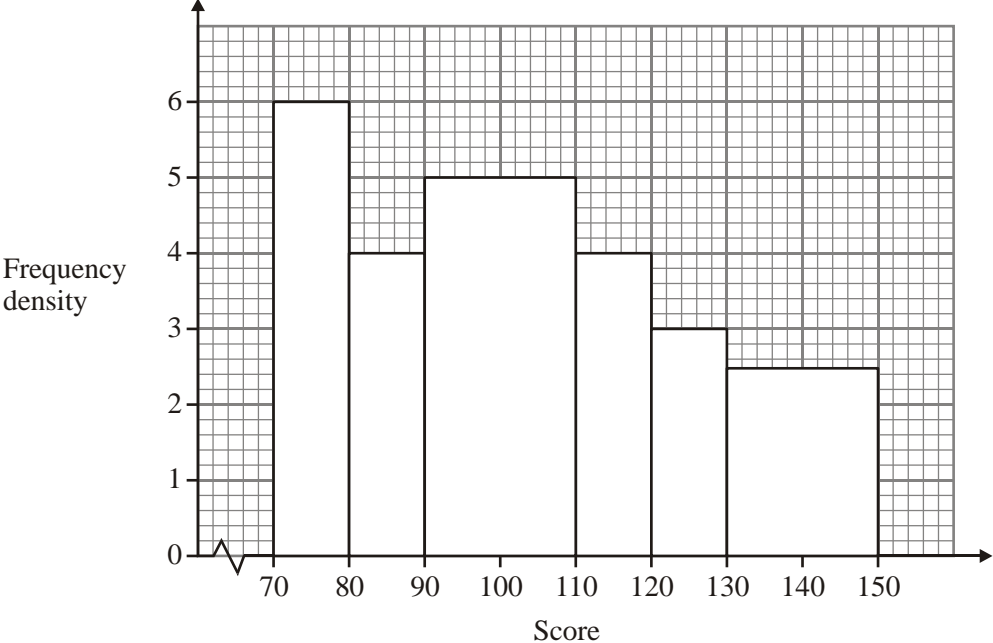
.....

Answer minutes

(2)

(Total 5 marks)

4. The histogram shows the test scores of 320 children in a school.



(a) Find the median score.

.....

Answer

(2)

(b) Find the interquartile range of the scores.

.....

Answer

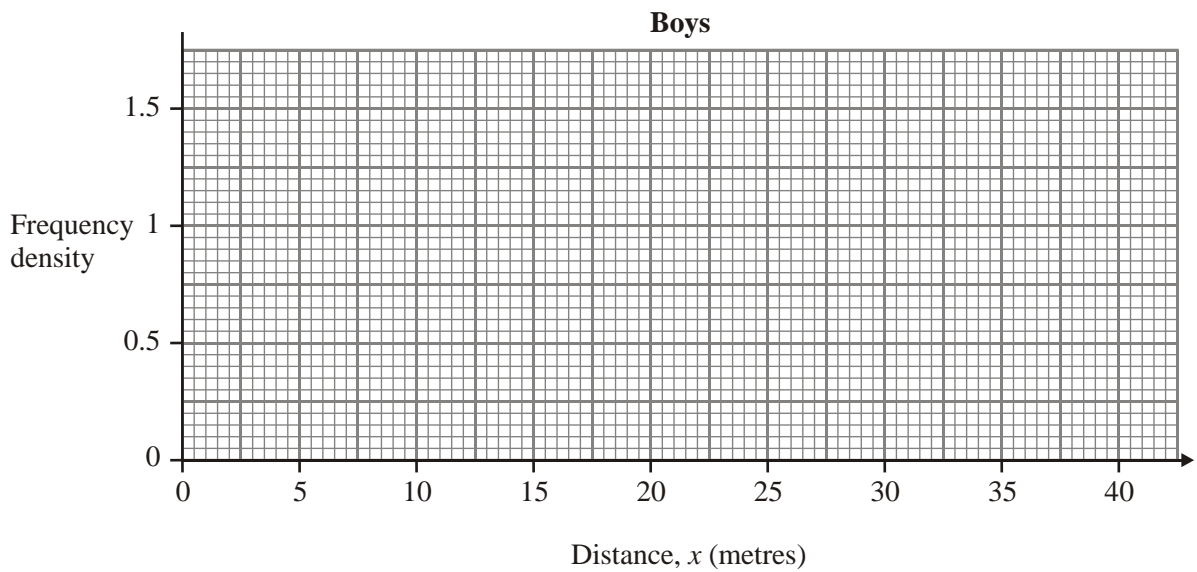
(2)

(Total 4 marks)

5. The table summarises the distances thrown in the discus event by 20 boys during a school sports day.

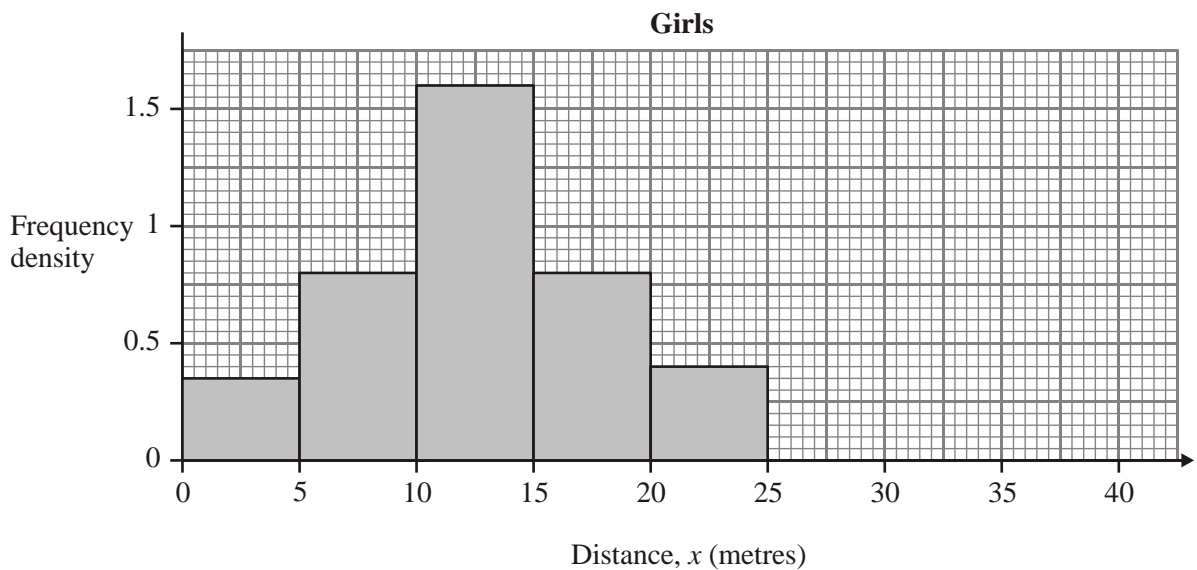
Distance, x (metres)	Number of boys
$0 < x \leq 5$	1
$5 < x \leq 10$	0
$10 < x \leq 20$	9
$20 < x \leq 30$	5
$30 < x \leq 35$	4
$35 < x \leq 40$	1

- (a) Draw a histogram to represent this data.



(3)

- (b) The distances thrown in the discus event by 20 girls are represented by the histogram below.



Write down **two** comparisons between the distances thrown by the boys and the girls.

Comparison 1

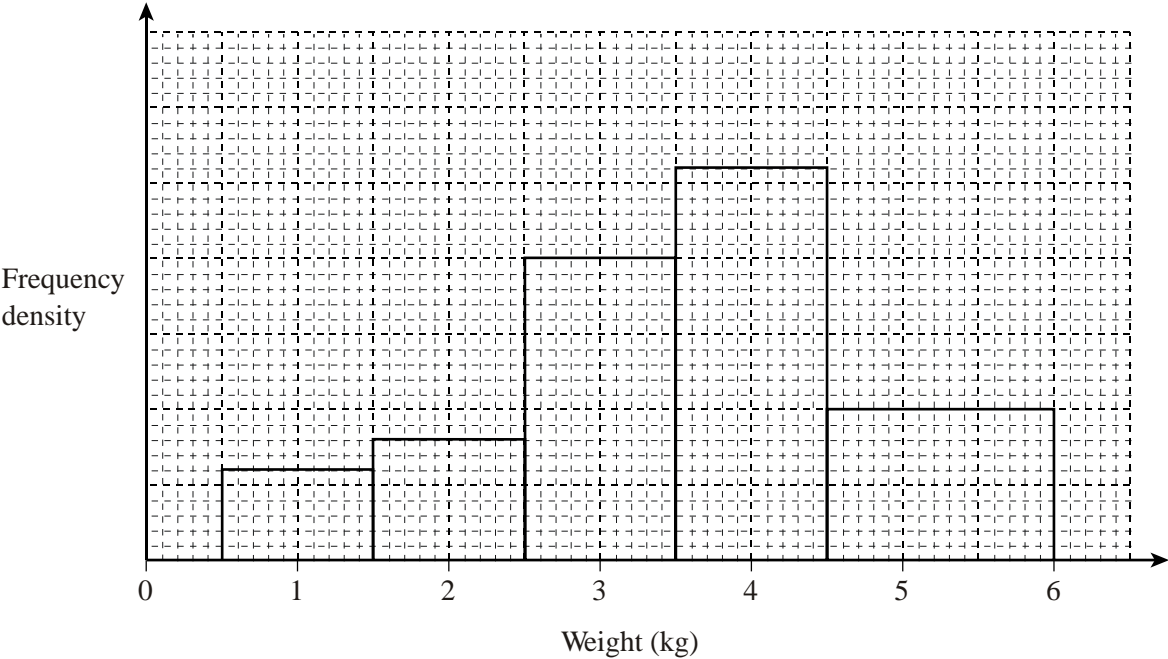
.....

Comparison 2

.....

(2)
(Total 5 marks)

6. The histogram represents the birth weights of 150 babies.



Thirty babies weighed over 4.5 kg
Babies weighing under 2 kg are taken to the Special Care Baby Unit.

Calculate the number of babies taken to the Special Care Baby Unit.

.....

.....

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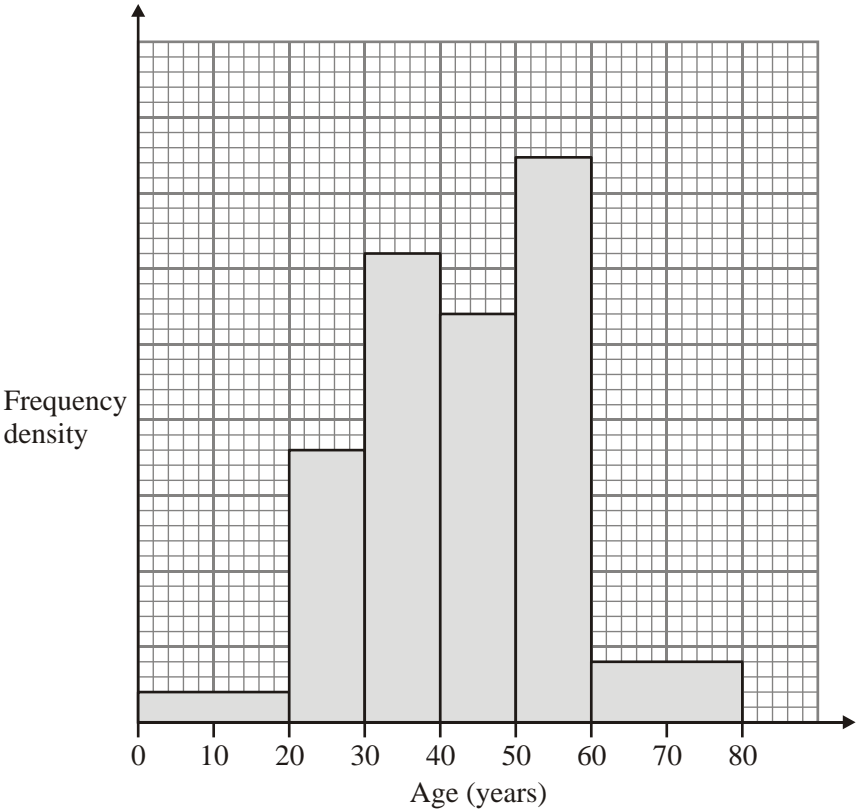
.....

.....

Answer

(Total 3 marks)

7. The histogram represents the ages of the members of a golf club.



There are 44 members who are aged under 30.

Calculate the number of members who are aged 55 or over.

.....

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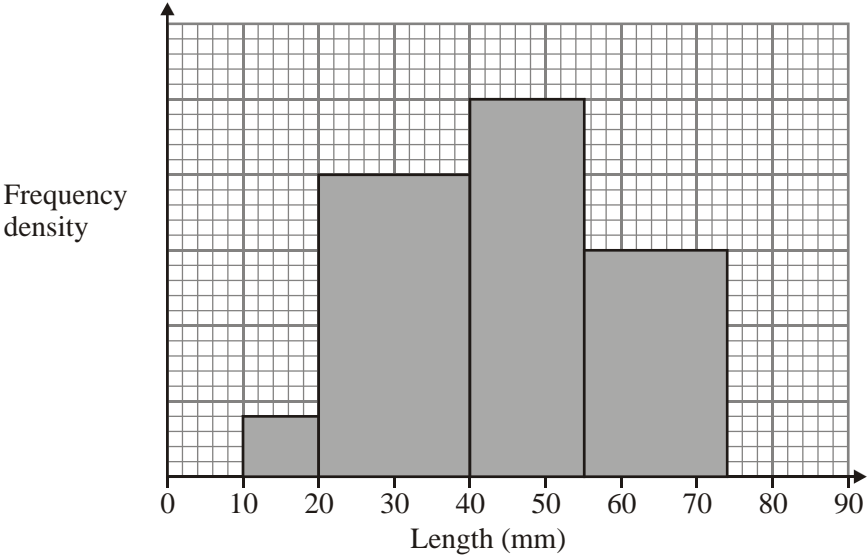
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.....

Answer

(Total 4 marks)

8. The histogram shows the lengths of leaves of a certain species of plant.



Forty-two leaves measured 25 mm or less.

How many leaves measured 60 mm or more?

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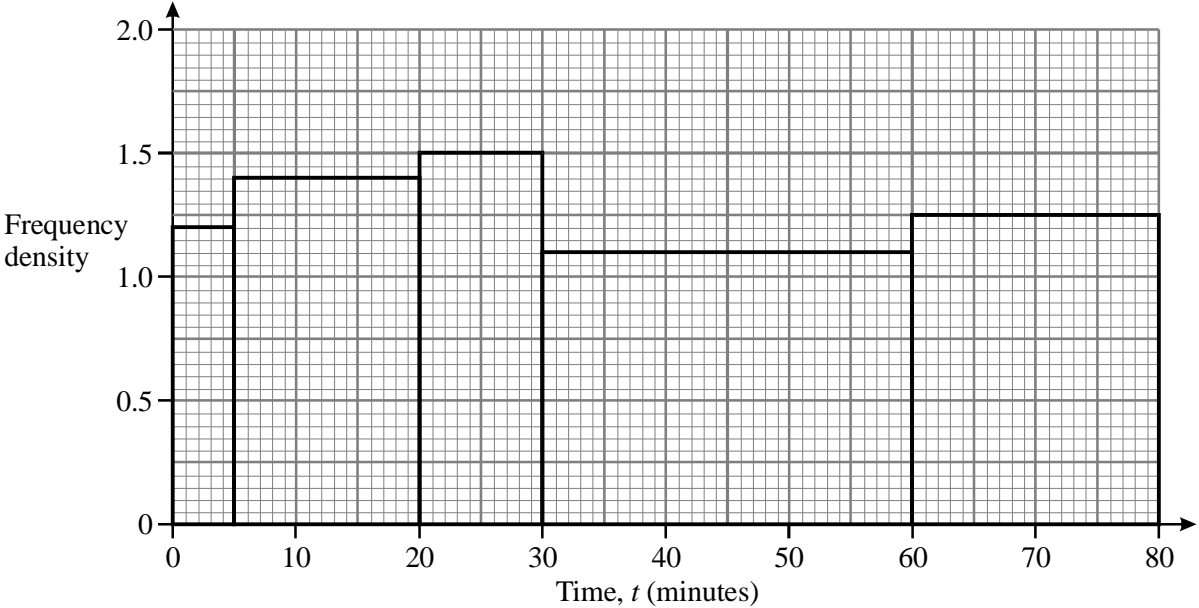
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Answer

(Total 4 marks)

9. The histogram shows information about how much time was spent in a supermarket by 100 shoppers.



(a) Complete this frequency table:

Time, t (minutes)	$0 < t \leq 5$	$5 < t \leq 20$	$20 < t \leq 30$	$30 < t \leq 60$	$60 < t \leq 80$
Number of shoppers	6		15		25

(2)

(b) 20% of the shoppers are in the supermarket for more than T minutes.
Calculate an estimate of the value of T .

.....

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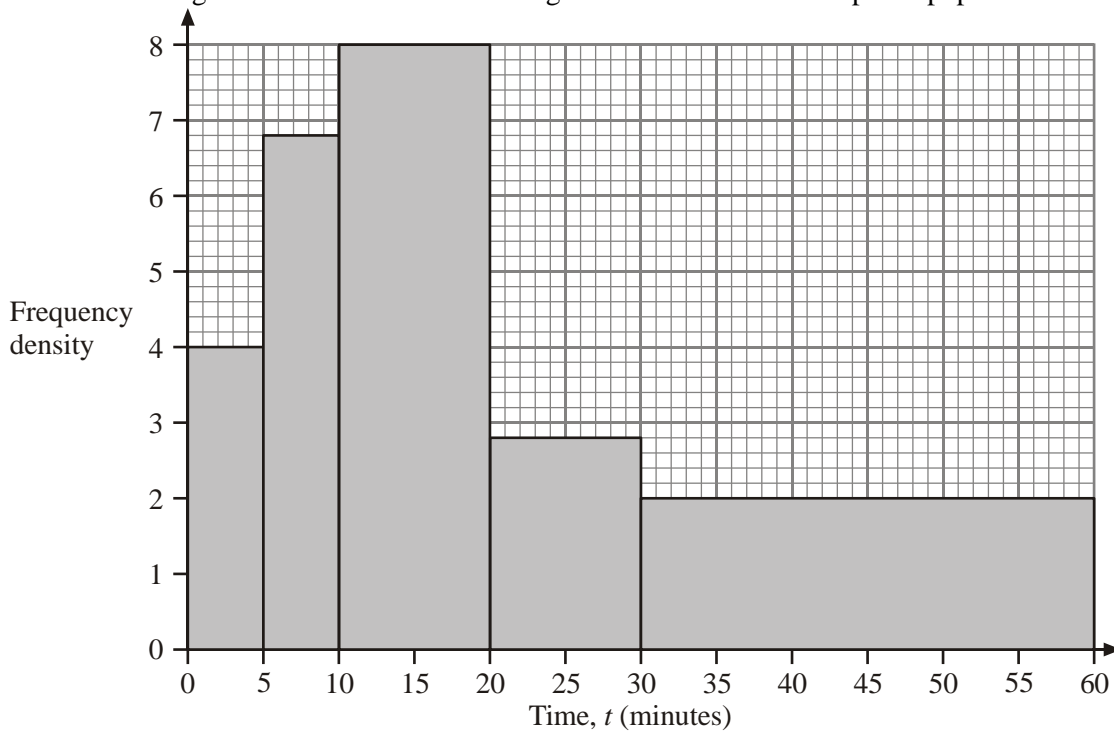
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Answer

(2)

(Total 4 marks)

10. The histogram summarises the travelling times to school of a sample of pupils.



(a) Complete the frequency table below.

.....

Time, t (minutes)	$0 < t \leq 5$	$5 < t \leq 10$	$10 < t \leq 20$	$20 < t \leq 30$	$30 < t \leq 60$
Number of pupils			80		

(3)

(b) One-third of these pupils take more than T minutes to travel to school.

Calculate an estimate of the value of T .

.....

Answer minutes

(3)(Total 6 marks)

Success:

Target: