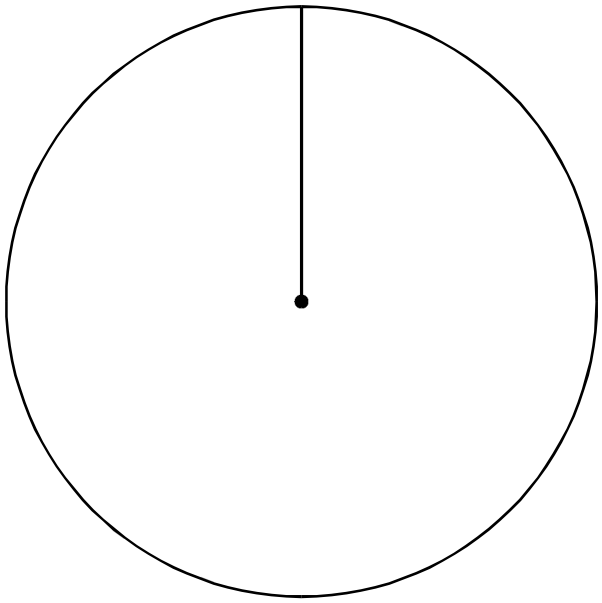
Handling Data (Excluding Histograms)

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

Tier	Number of pupils
Foundation	46
Intermediate	70
Higher	28

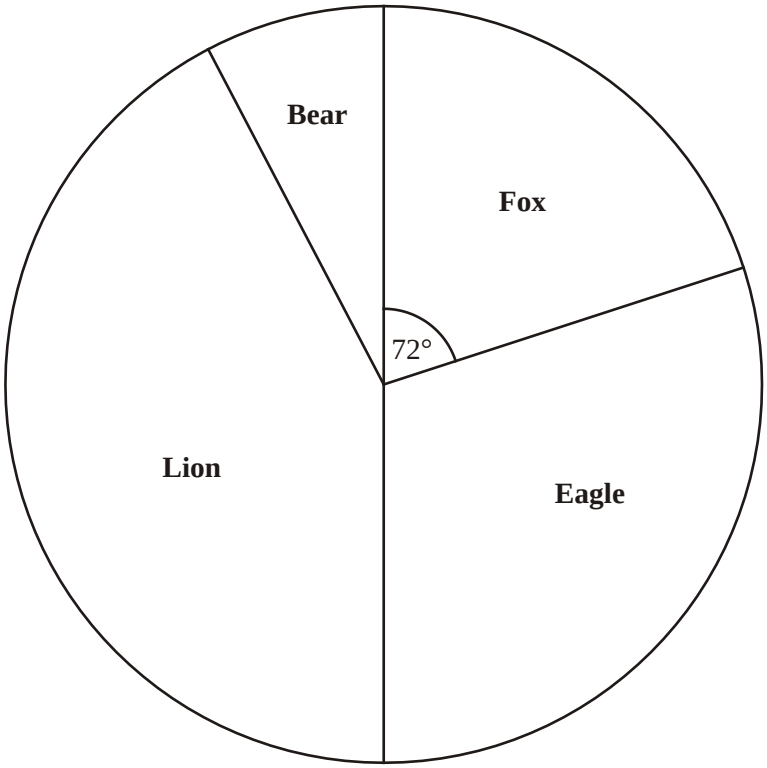
Complete the pie chart for the school GCSE Mathematics entry.
Label each sector clearly.



(Total 3 marks)

2. 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?

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Answer ……

(3)

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

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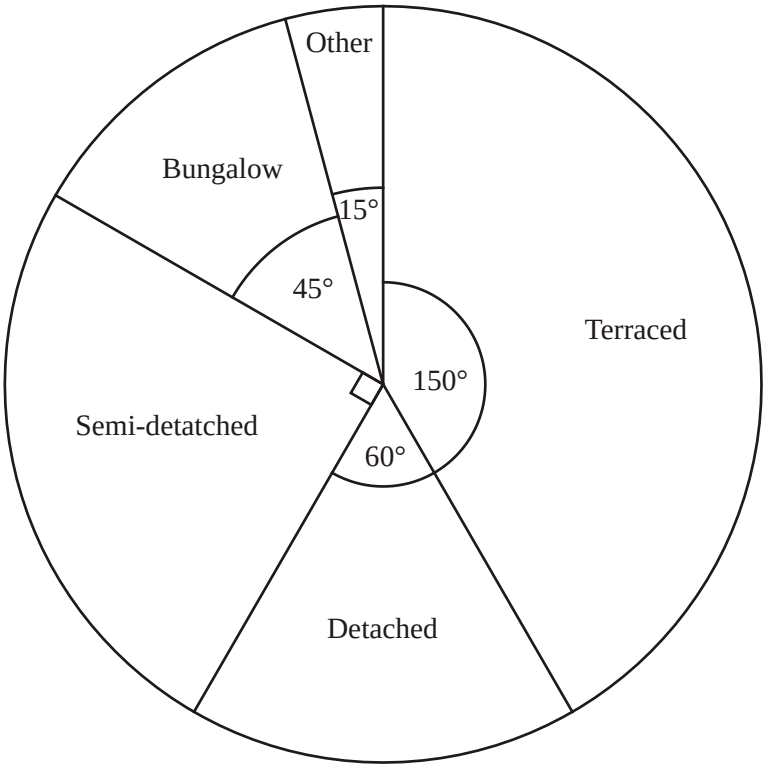
Answer ..... %

(2)

(Total 5 marks)

3. Louise asks the children in her year group what type of house they live in.
The results are shown in the pie chart.



(a) There are 12 children who live in detached houses.

How many children live in semi-detached houses?

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Answer .....

(3)

(b) Calculate how many children Louise asked.

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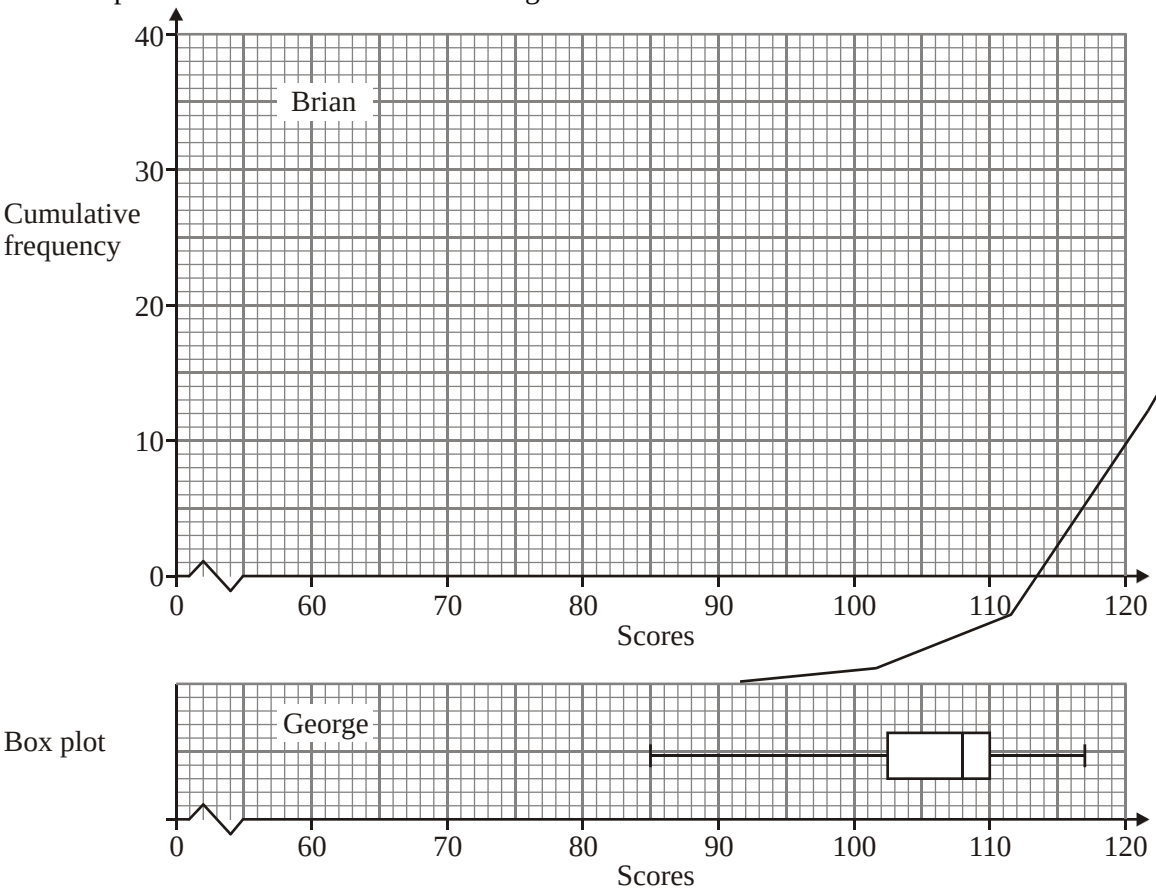
Answer .....

(2)

(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

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Answer .....

(1)

(ii) Brian's inter-quartile range.

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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.

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(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.

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(1)

(Total 5 marks)

5. The table shows the distances travelled to school by 50 pupils living in a town.

Distance travelled, *d* (km)	**Frequency**
$0 < d \leq 2$	12
$2 < d \leq 4$	18
$4 < d \leq 6$	10
$6 < d \leq 8$	8
$8 < d \leq 10$	2

(a) Calculate an estimate of the mean distance travelled to school by these pupils.

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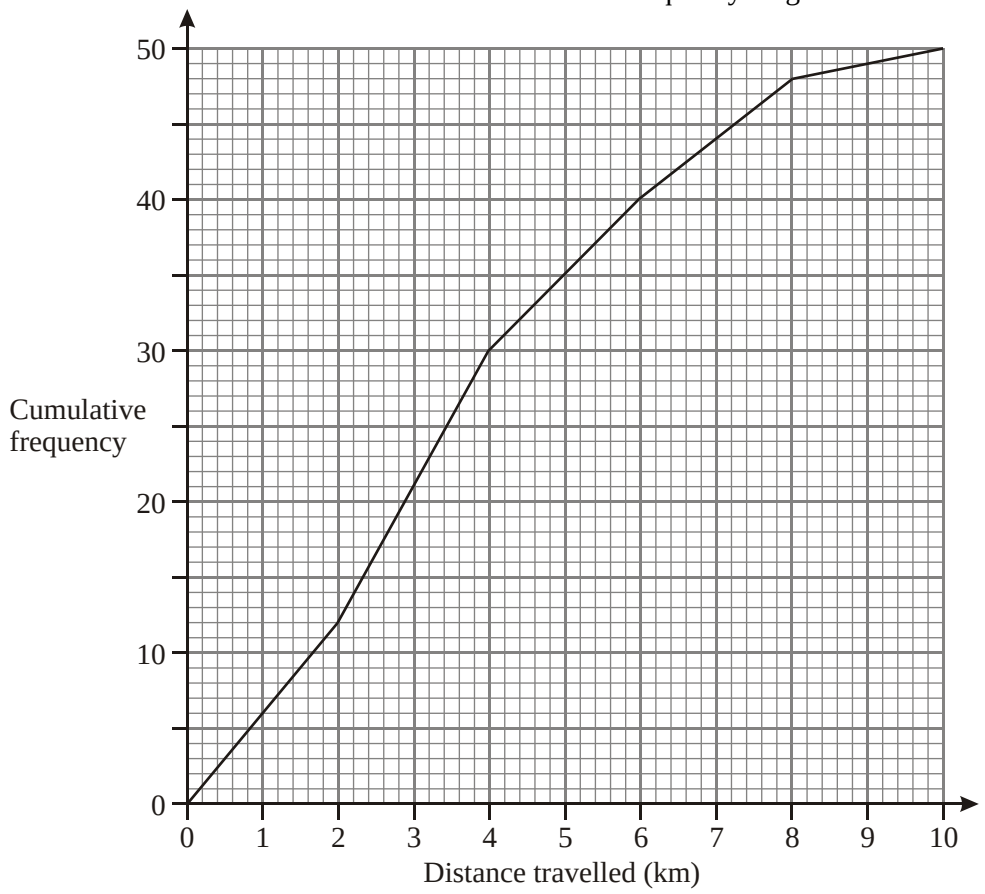
Answer ..... km

(4)

(b) The distances travelled are shown on the cumulative frequency diagram.



Use the cumulative frequency diagram to estimate

(i) the median,

Answer ..... km

(1)

(ii) the interquartile range

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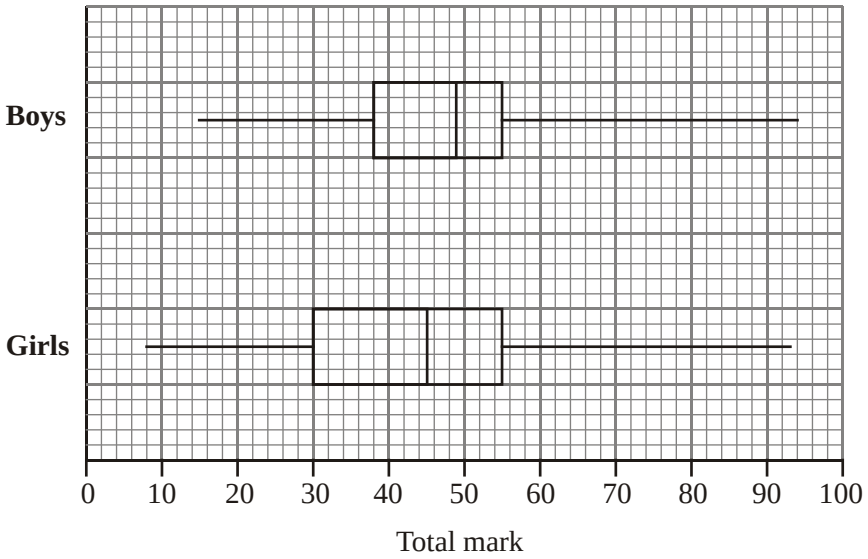
Answer ..... km

(2)

(Total 7 marks)

6. 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 .....

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Difference 2 .....

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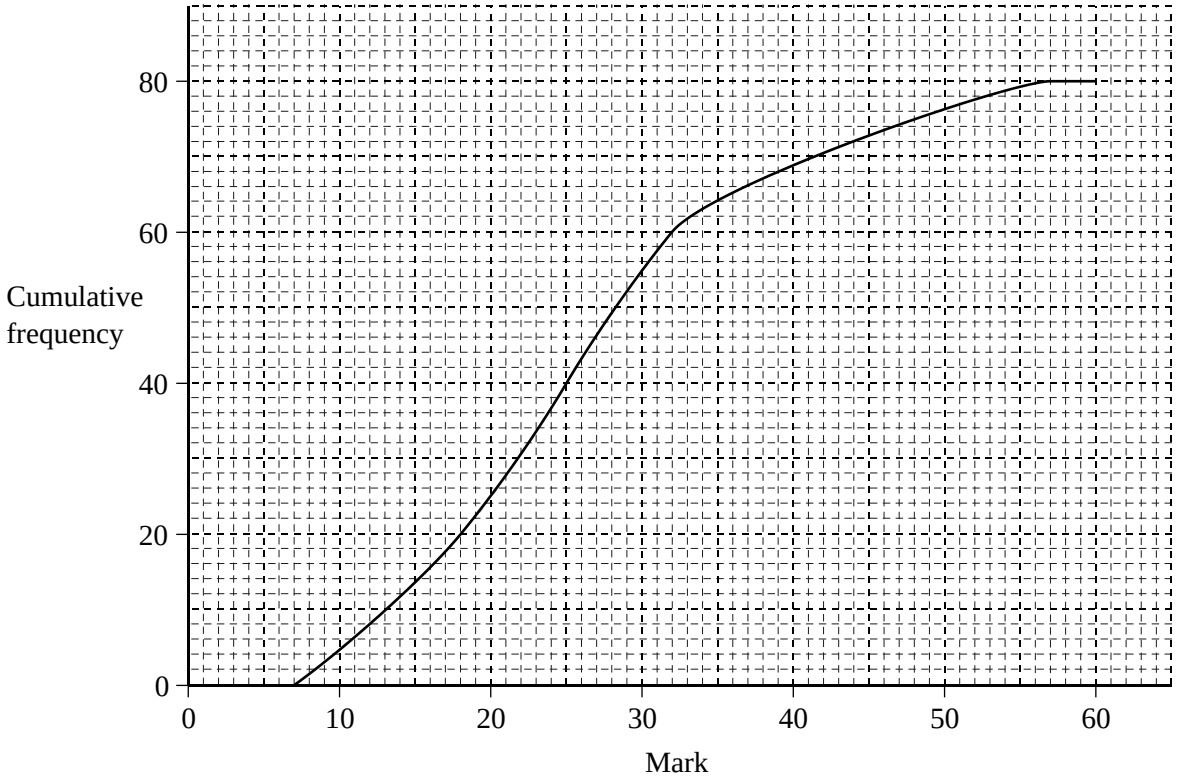
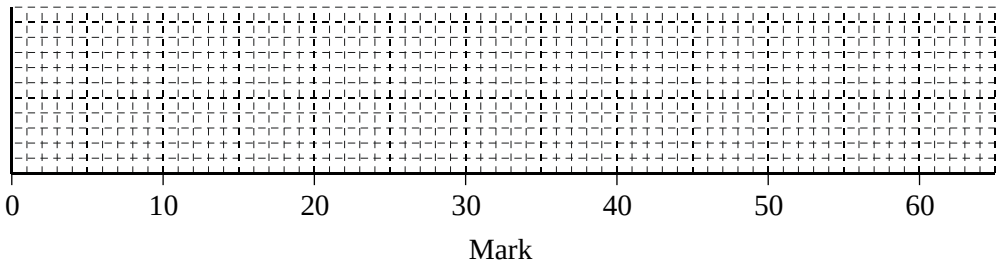
(Total 2 marks)

7. 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)

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

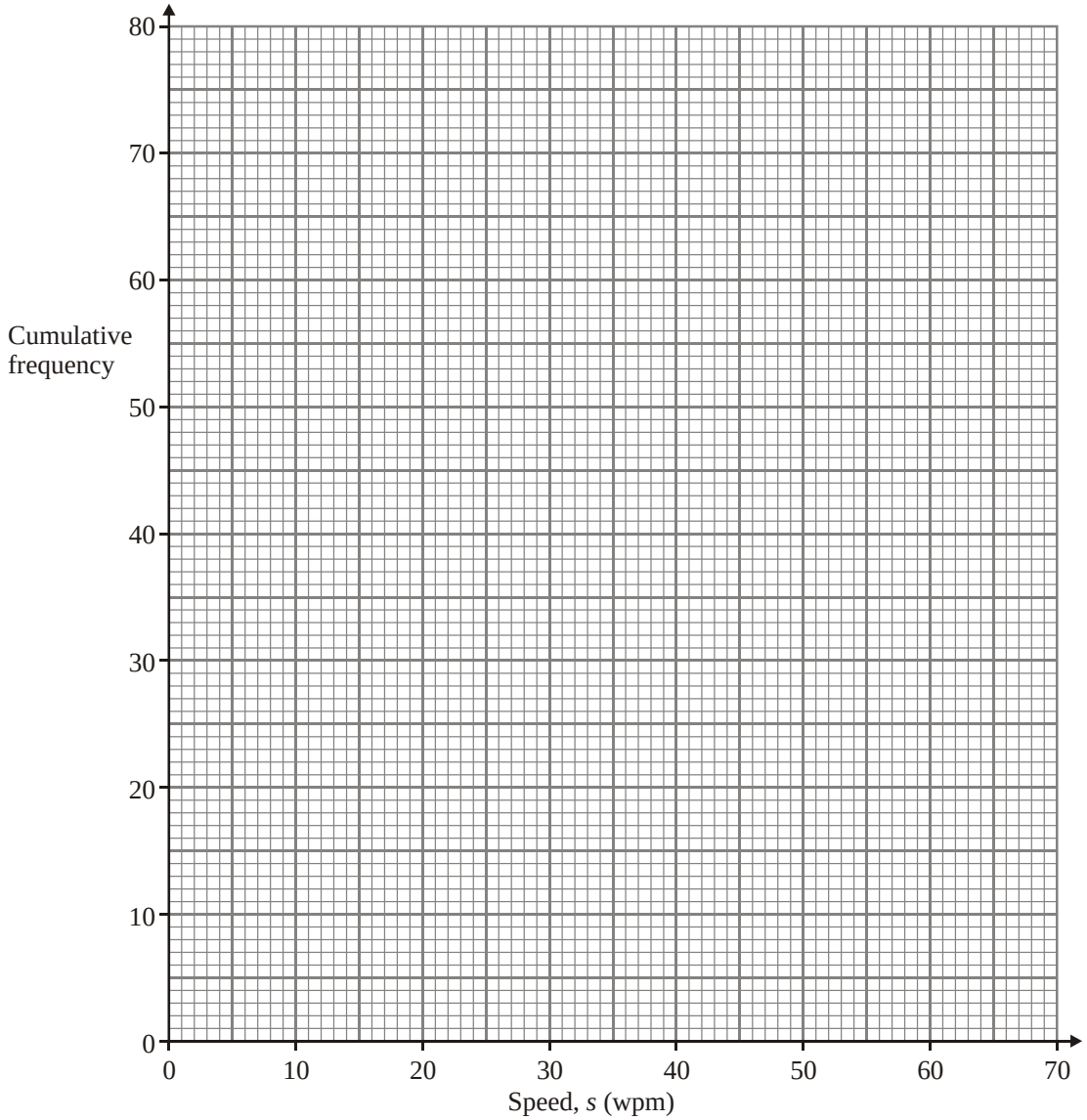
Speed, s (wpm)	Number of typists
$20 \leq s < 30$	8
$30 \leq s < 40$	30
$40 \leq s < 50$	24
$50 \leq s < 60$	13
$60 \leq s < 70$	5

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.



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

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Answer ..... wpm

(2)

(c) Typists achieving less than 45 words per minute have to resit the test.
Estimate the number of typists who have to resit the test.

Answer ..... typists

9. 120 men took part in a fitness test.
The times taken to complete the test are shown in the table.

Time, *t* (minutes)	**Frequency**
$10 < t \leq 12$	21
$12 < t \leq 14$	49
$14 < t \leq 16$	37
$16 < t \leq 18$	13
Total	120

(a) Which class interval contains the median time taken by these men to complete the test?
You **must** show your working.

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Answer …… $< t \leq$ ……

(2)

(b) Calculate an estimate of the mean time taken by these 120 men to complete the test.

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Answer ……..... minutes

(4)

(c) 90 women also took part in this fitness test.
An estimate of the mean time taken by these 90 women was calculated.
It was found to be 15.8 minutes.

Calculate an estimate of the mean time taken by all the 210 people to complete this test.

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Answer ……..... minutes

(3)

(Total 9 marks)

10. The time taken, in minutes, for a group of students to complete their homework is summarised in the grouped frequency table.

Time, *t* (minutes)	**Frequency**
$5 \leq t < 15$	3
$15 \leq t < 25$	f
$25 \leq t < 35$	7
$35 \leq t < 45$	6
$45 \leq t < 55$	4

The grouped data was used to calculate an estimate of the mean.
This was found to be 30 minutes.

Calculate the value of the missing frequency, f.
You **must** show your working.

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Answer .....

(Total 4 marks)

11. The table shows the weights of 100 children in year 7.
An estimate of the mean weight of the children is calculated as 44 kg.

Calculate the values of a and b.

Weight, w (kg)	**Frequency**
$20 < w \leq 30$	12
$30 < w \leq 40$	21
$40 < w \leq 50$	38
$50 < w \leq 60$	a
$60 < w \leq 70$	b

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Answer a =....., b = ……..

(Total 6 marks)

12. (a) What is a census?

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(1)

The table shows the number of each type of staff at three hospitals.

Staff	Hospital A	Hospital B	Hospital C
Doctors	8	15	22
Nurses	26	50	75
Others	46	80	120

(b) Simon wants to take a stratified sample of size 10 from the staff at hospital A.

Calculate the number of each type of staff that Simon should choose.

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Answer Doctors ……

Nurses ……

Others ……

(3)

(c) Tracy wants a stratified sample of size 30 from the doctors in the three hospitals.

Calculate how many doctors Tracy should choose from hospital B.

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Answer ……

(2)

(Total 6 marks)