1. March/2023/Paper_0580/12/No.11

The median of six numbers is 61.
Five of the numbers are 24, 43, 58, 71 and 85.

Work out the sixth number.

..... [1]

2. March/2023/Paper_0580/12/No.17

A school records how many calculators it sells each week for 40 weeks.
The results are shown in the table.

Number of calculators	Frequency
0	14
1	12
2	6
3	5
4	0
5	2
6	1

Work out the mean number of calculators the school sells each week.

..... [3]

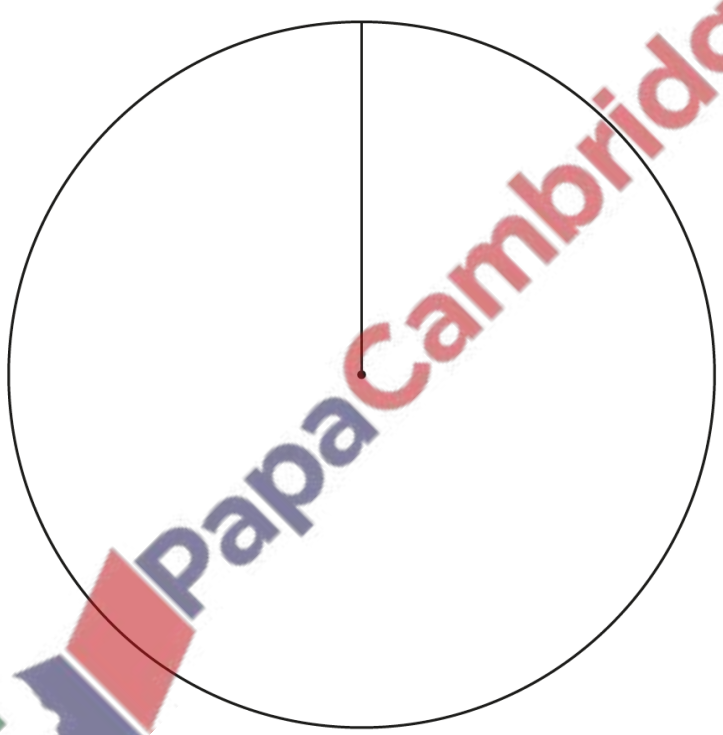
3. March/2023/Paper_0580/32/No.2

(a) Manjit asks 30 students whether they prefer joke books, puzzle books or poetry books. The results are shown in the table.

Type of book	Number of students	Pie chart sector angle
Joke	8	
Puzzle	18	
Poetry	4	

(i) Complete the table. [2]

(ii) Complete the pie chart. [2]



(iii) One of the students is chosen at random.

Find the probability that this student prefers puzzle books.

..... [1]

(b) The stem-and-leaf diagram shows the test scores for 24 students.

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

Key : 4 | 2 represents 42

(i) Write down the mode.

..... [1]

(ii) 75% of the 24 students pass the test.

Work out the lowest score needed to pass the test.

..... [2]

(iii) Work out the range.

..... [1]

(iv) Frankie was absent on the day of the test.
His score is not on the stem-and-leaf diagram.
When he takes the test, his score increases the range by 3 marks.

Write down the two possible values of Frankie's score.

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

4. March/2023/Paper_0580/42/No.2

(a) 100 students take part in a reaction test.
The table shows the results.

Reaction time (seconds)	6	7	8	9	10	11
Number of students	3	32	19	29	11	6

(i) Write down the mode.

..... s [1]

(ii) Find the median.

..... s [1]

(iii) Calculate the mean.

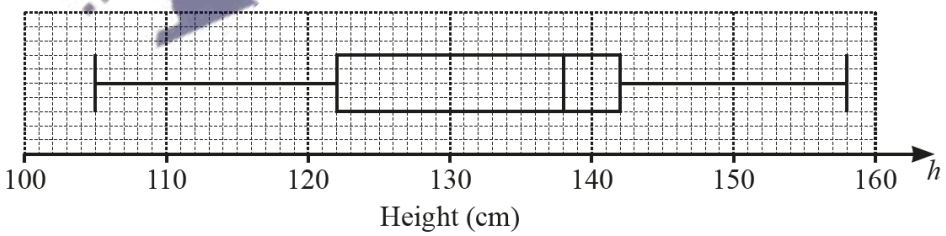
..... s [3]

(iv) Two students are chosen at random.

Find the probability that both their reaction times are greater than or equal to 9 seconds.

..... [2]

(b) The box-and-whisker plot shows the heights, h cm, of some students.



(i) Find the range.

..... cm [1]

(ii) Find the interquartile range.

..... cm [1]

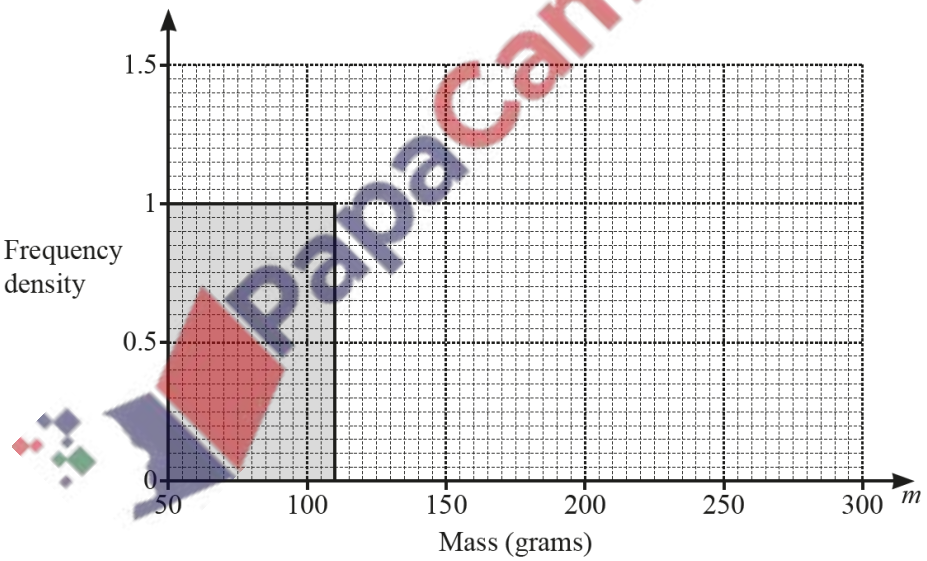
(c) The mass of each of 200 potatoes is measured.
The table shows the results.

Mass (m grams)	$50 < m \leqslant 110$	$110 < m \leqslant 200$	$200 < m \leqslant 300$
Frequency	60	99	41

(i) Calculate an estimate of the mean.

..... g [4]

(ii) Complete the histogram to show the information in the table.



[2]

5. June/2023/Paper_0580/11/No.5

21 8 15 32 3 29 19 45 8

Calculate the mean of these numbers.

..... [2]

6. June/2023/Paper_0580/12/No.8//June/2023/Paper_0580/22/No.3

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

1 3 12 5 4 23 5 24 11 8

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

0	1 3
1	
2	

Key: 0 | 1 represents 1 minute

[2]

(b) Find the median.

..... min [1]

7. June/2023/Paper_0580/13/No.4

Bobby records the number of days a shop is open during 30 days.

	Tally	Frequency
Days open	𝍸 𝍸 𝍸 𝍸 |||	
Days not open		

Complete the table. [2]

8. June/2023/Paper_0580/13/No.7

The stem-and-leaf diagram shows the ages of 21 people.

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

Key : 1|6 represents 16 years

(a) Find the fraction of people who are more than 30 years old.

..... [1]

(b) Work out the range.

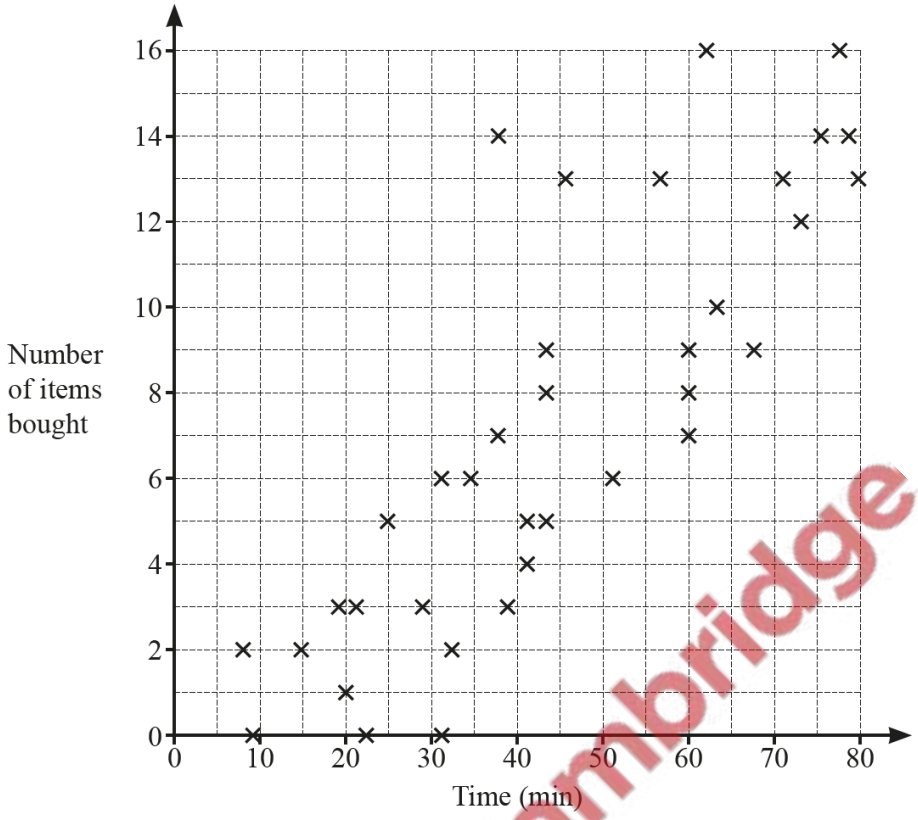
..... [1]

(c) Find the median.

..... [1]

9. June/2023/Paper_0580/13/No.14

The scatter diagram shows information about the time spent in a shop and the number of items bought.



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

..... [1]

(b) Describe the relationship between the time spent in the shop and the number of items bought.

.....

..... [1]

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

10. June/2023/Paper_0580/31/No.3

These are the test scores of 16 students.

15	26	9	45	36	20	41	39
40	23	32	18	41	34	37	31

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

0	
1	
2	
3	
4	

Key: 1|5 represents 15

[2]

(b) Find the mode.

..... [1]

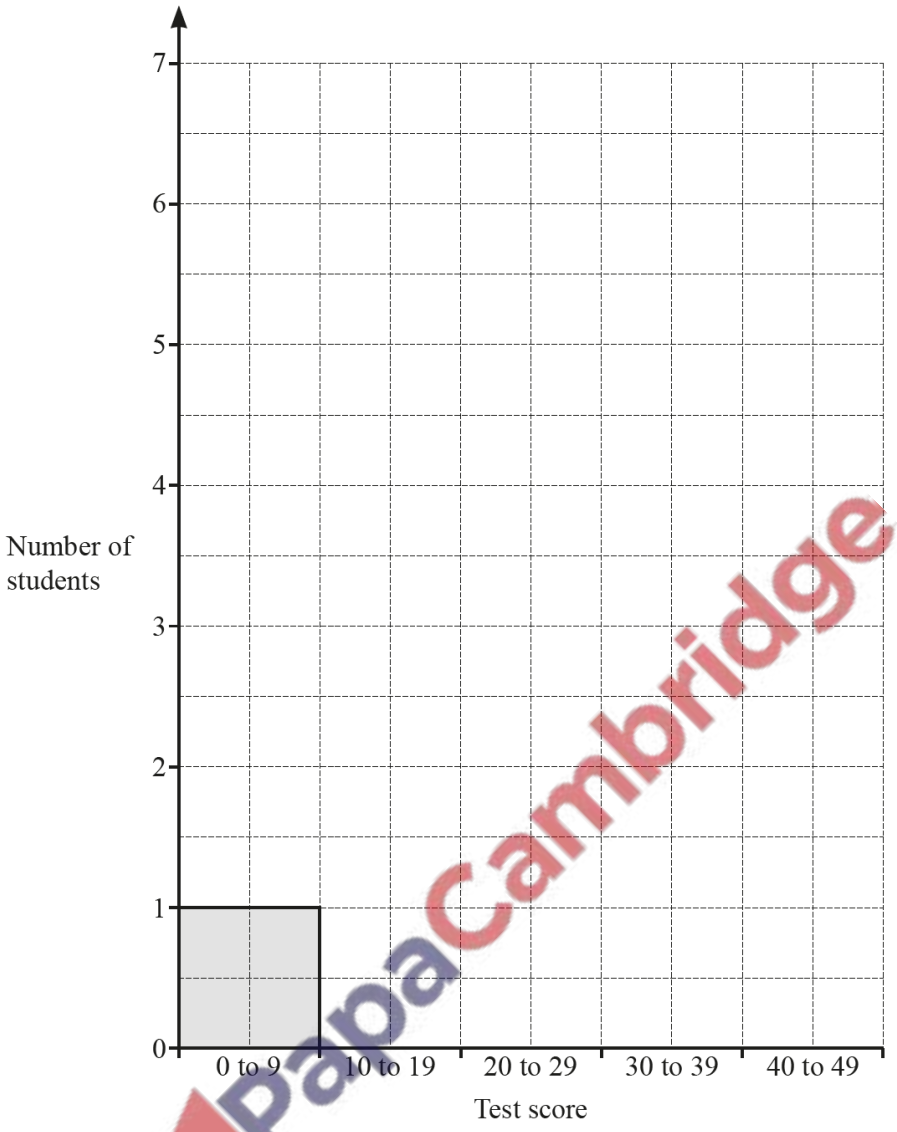
(c) Find the median.

..... [1]

(d) Find the range.

..... [1]

(e) Complete the bar chart for the test scores of the 16 students.



[2]

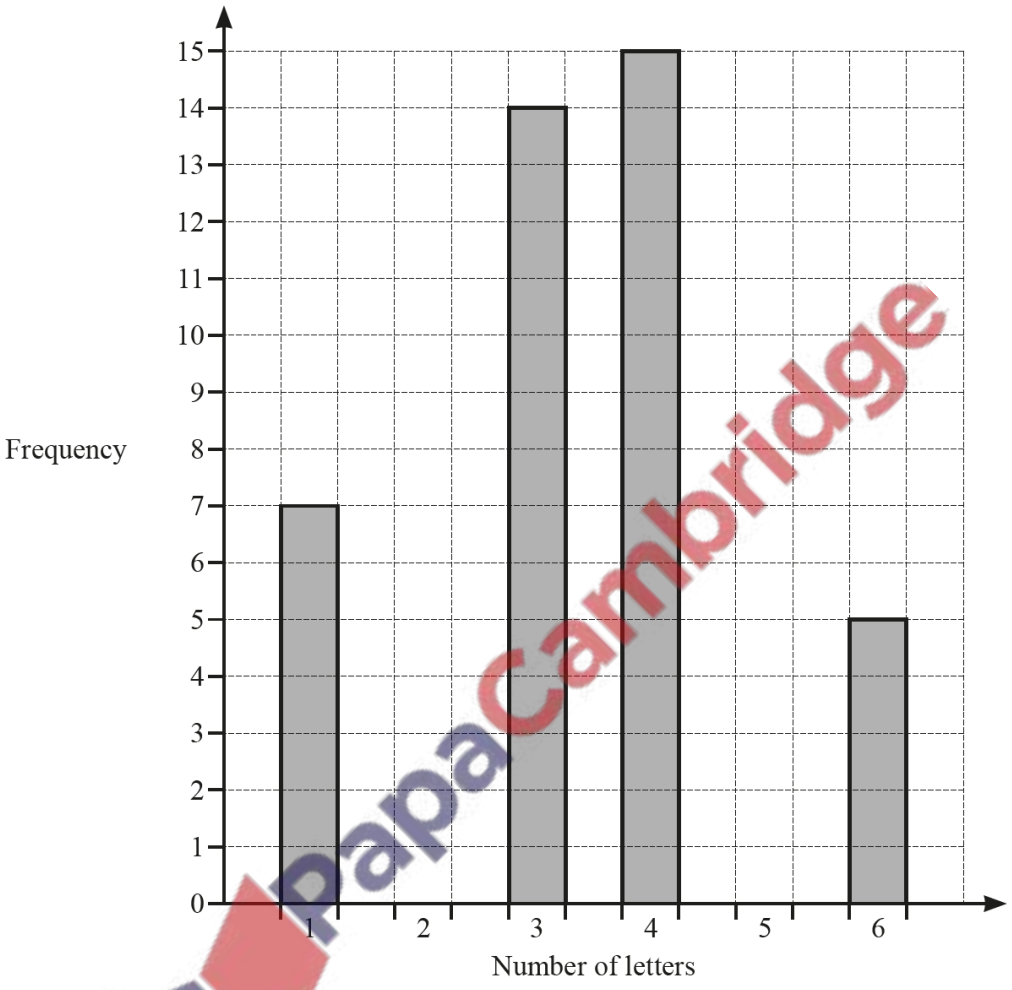
(f) Work out the percentage of students with a test score of 40 or more.

..... % [1]

11. June/2023/Paper_0580/32/No.2

(a) Mika counts the number of letters in each of the 61 words in a paragraph.
Some of his results are shown in the table and bar chart.

Number of letters	1	2	3	4	5	6
Frequency	7	12		15		5



(i) Complete the table and the bar chart. [3]

(ii) Write down the mode.

..... [1]

(b) Grace also counts the number of letters in each word of another paragraph.
Her results are shown in the table.

Number of letters	1	2	3	4	5	6
Frequency	10	18	9	6	5	2

(i) Work out the mean.

..... [3]

(ii) She picks one of these words at random.

Find the probability that it has more than three letters.

..... [2]

(c) She counts the number of letters in each word in the next sentence.
These are her results.

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

(i) Find the median.

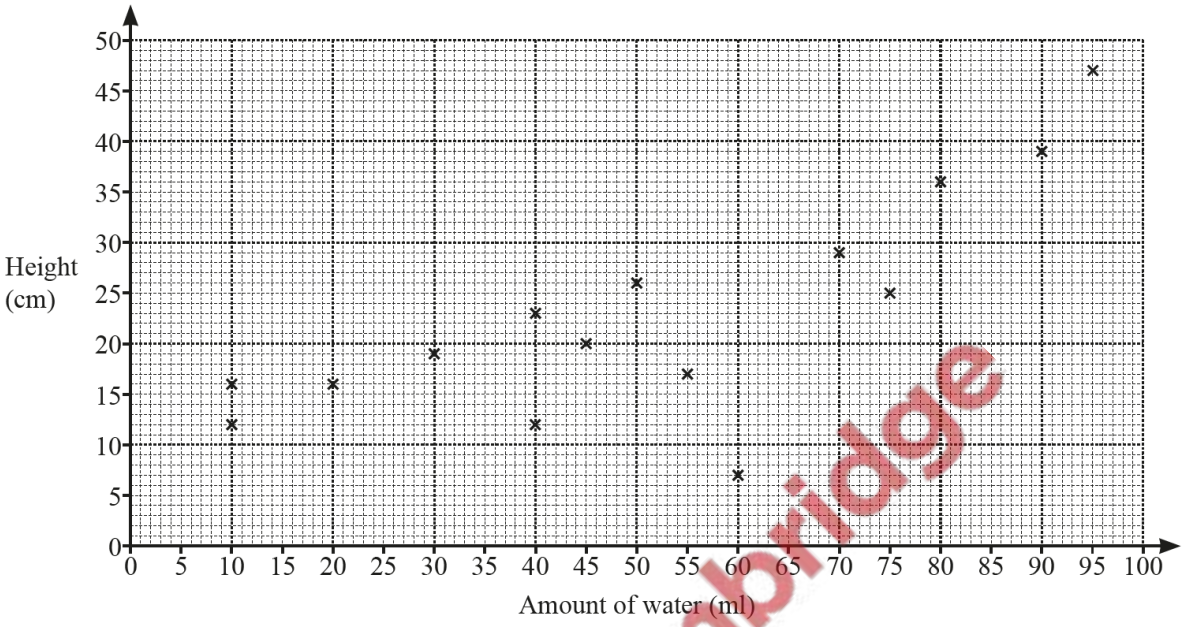
..... [2]

(ii) Find the range.

..... [1]

12. June/2023/Paper_0580/32/No.4

Fidel gives different amounts of water to some plants.
The scatter diagram shows the height (cm) and the amount of water (ml) for each of 15 plants.



(a) Plot these two results on the scatter diagram.

Amount of water (ml)	60	85
Height (cm)	27	41

[1]

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

..... [1]

(c) One of the plants had a lower height than expected for the amount of water given.

On the scatter diagram, put a ring around the point for this plant. [1]

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

(ii) Another plant is given 65 ml of water.

Use your line of best fit to estimate the height of this plant.

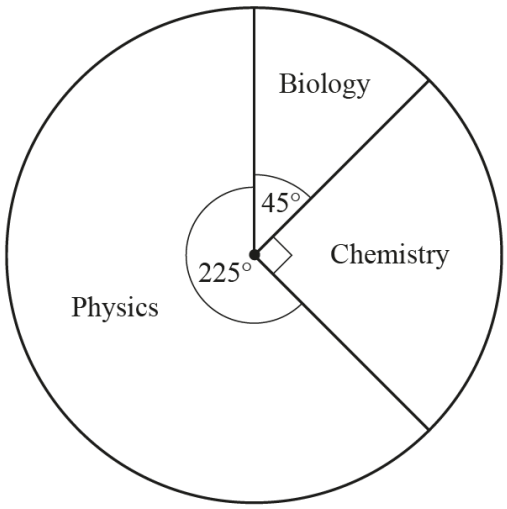
..... cm [1]

(e) Find the percentage of these 17 plants that have a height of more than 24 cm.
Give your answer correct to 1 decimal place.

..... % [3]

13. June/2023/Paper_0580/33/No.1

(a) Claudia asks some students to choose their favourite science from biology, chemistry and physics. The pie chart shows the results.



(i) Find the percentage of students who choose chemistry.

.....% [1]

(ii) Find the fraction of students who choose physics.
Give your answer in its simplest form.

..... [2]

(iii) For the number of students choosing each subject, find the ratio biology : chemistry : physics.
Give your answer in its simplest form.

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

(iv) Marcus says:

'I do not know how many people choose chemistry, but I do know it is an even number.'

Explain how Marcus knows this.

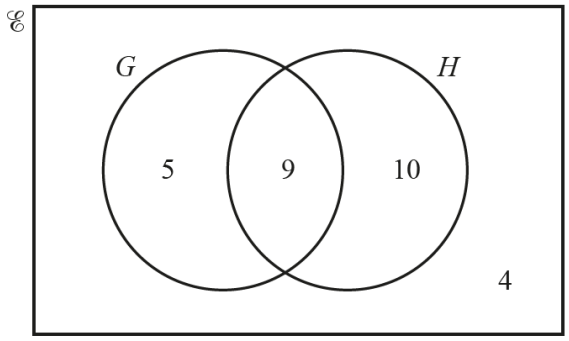
..... [1]

(v) Claudia now tells Marcus that 26 students choose chemistry.

Work out how many students choose physics.

..... [2]

(b) The Venn diagram shows information about the number of students in a class who study geography (G) and history (H).



(i) Work out the number of students in the class.

..... [1]

(ii) Find $n(G)$.

..... [1]

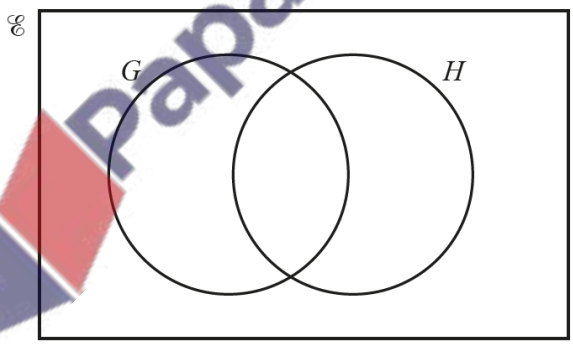
(iii) One of the students is chosen at random.

Find the probability that this student studies geography and history.

..... [1]

(iv) One of the students who studies geography and history stops studying history.

Complete this Venn diagram to show this change.



[1]

14. June/2023/Paper_0580/41/No.3

(a) The table shows information about the mass of each of 1000 eggs.

Mass (m grams)	$40 < m \leqslant 50$	$50 < m \leqslant 56$	$56 < m \leqslant 64$	$64 < m \leqslant 70$
Frequency	126	520	154	200

(i) Calculate an estimate of the mean.

..... g [4]

(ii) An egg is picked at random from the 1000 eggs.

Find the probability that this egg has a mass greater than 56 g.
Give your answer as a fraction in its simplest form.

..... [2]

(b) One year, a farmer makes a profit of $24 730 selling eggs.

Write this profit

(i) correct to 2 significant figures

$ ..... [1]

(ii) in standard form.

$ ..... [1]

(c) On a farm, there are 500 hens, correct to the nearest 10.

(i) In one year, the mean number of eggs laid per hen was 320 eggs, correct to the nearest 20.

Calculate the upper bound for the total number of eggs all the hens lay in that year.

..... [3]

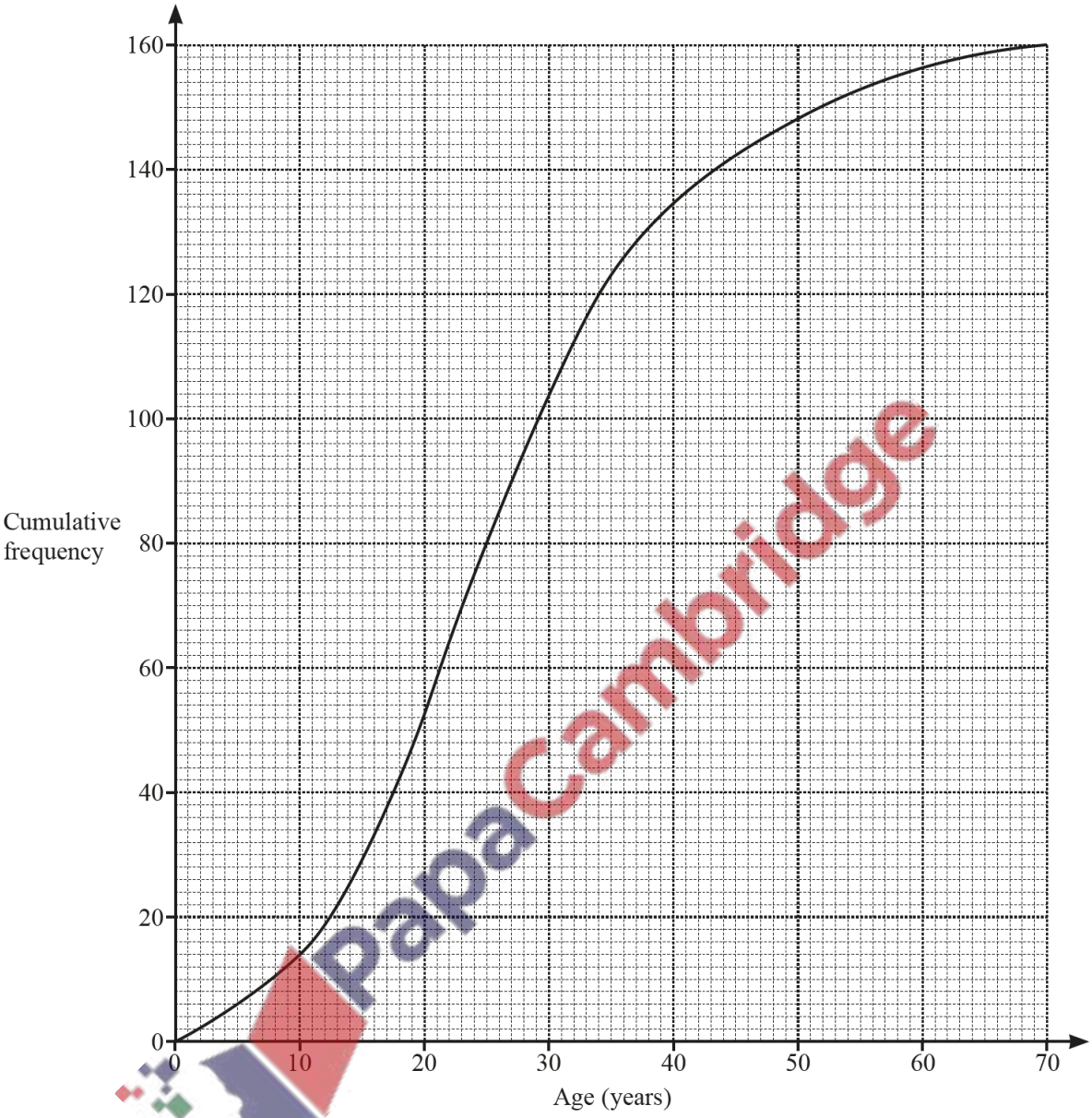
(ii) Another farm has 800 hens, correct to the nearest 20.

Calculate the lower bound for the difference between the number of hens on the two farms.

..... [2]

15. June/2023/Paper_0580/41/No.5

(a) There are 160 people in a village.
The cumulative frequency diagram shows information about their ages.



(i) Find an estimate for

(a) the median age

..... [1]

(b) the lower quartile

..... [1]

(c) the number of people who are 50 or more years of age

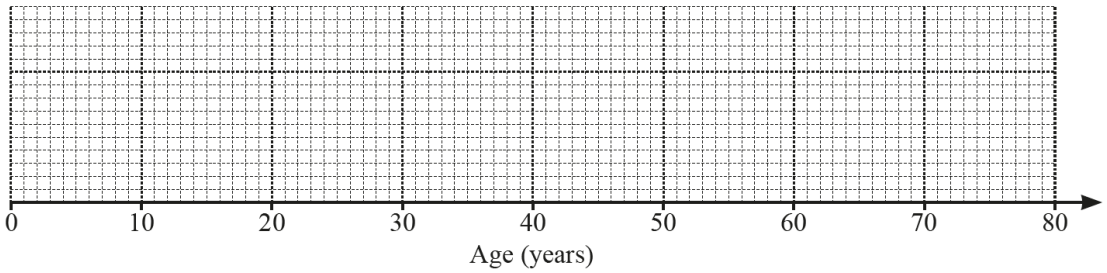
..... [2]

(d) the 65th percentile.

..... [2]

(ii) The youngest person in the village is 1 year old and the oldest is 70 years old.

(a) Draw a box-and-whisker plot to show the distribution of ages in the village.



[3]

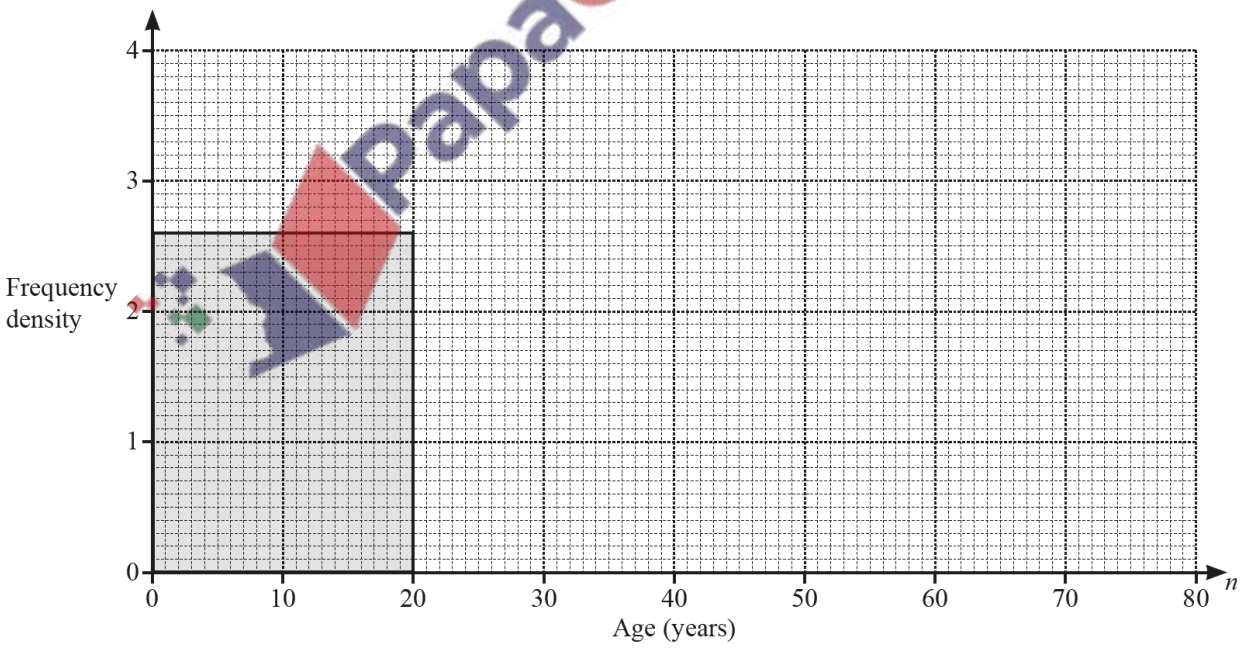
(b) Write down an estimate of the percentage of people in the village that are younger than the median age.

..... % [1]

(b) The frequency table shows information about the age of each person in another village.

Age (n years)	$0 < n \leqslant 20$	$20 < n \leqslant 30$	$30 < n \leqslant 50$	$50 < n \leqslant 80$
Frequency	52	37	24	60

On the grid, complete the histogram to show this information.
The first block has been drawn for you.



[3]

16. June/2023/Paper_0580/42/No.4

The table shows information about the heights of 80 children.

Height (h metres)	$1.2 < h \leqslant 1.4$	$1.4 < h \leqslant 1.5$	$1.5 < h \leqslant 1.65$	$1.65 < h \leqslant 1.8$	$1.8 < h \leqslant 1.9$
Frequency	2	13	24	32	9

(a) (i) Write down the interval containing the median.

..... $< h \leqslant$ ..... [1]

(ii) Calculate an estimate of the mean height.

..... m [4]

(b) (i) One of these children is chosen at random.
Calculate the probability that they have a height of 1.4 m or less.

..... [1]

(ii) Two of these children are chosen at random.
Calculate the probability that both children are taller than 1.5 m but only one of them is taller than 1.8 m.

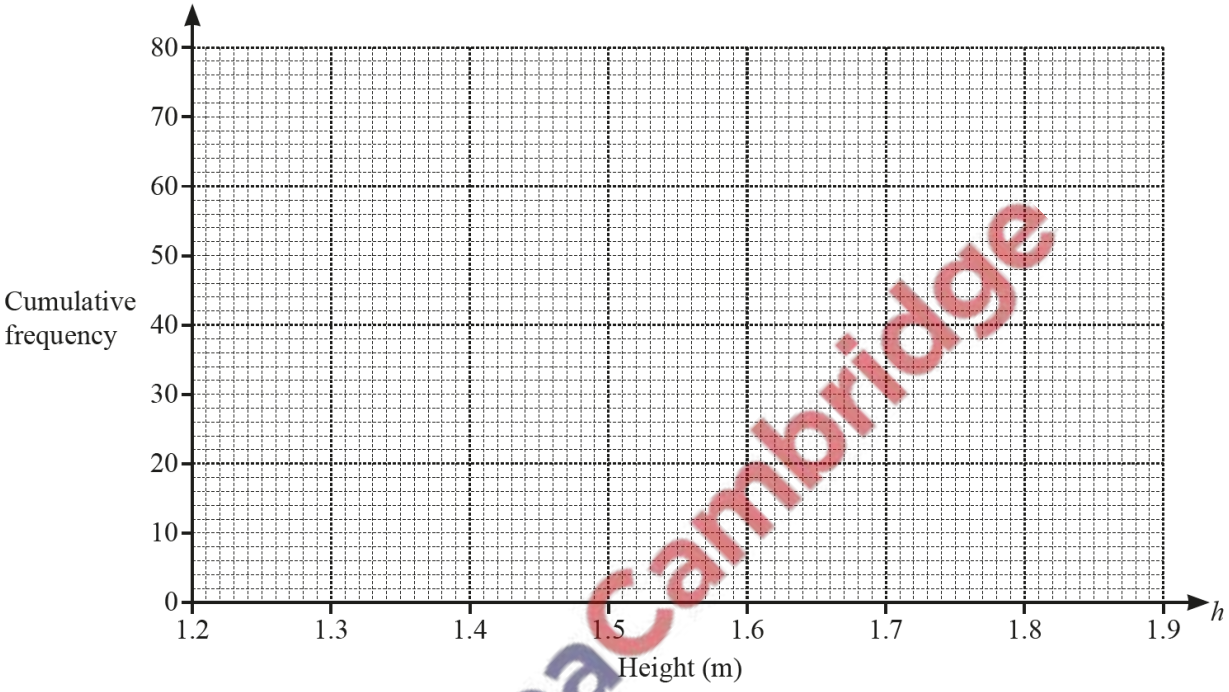
..... [3]

(c) **(i)** Complete the cumulative frequency table for the heights.

Height (h metres)	$h \leqslant 1.4$	$h \leqslant 1.5$	$h \leqslant 1.65$	$h \leqslant 1.8$	$h \leqslant 1.9$
Cumulative frequency	2				

[2]

(ii) On the grid, draw the cumulative frequency diagram.



[3]

(d) Use your diagram to find an estimate of

(i) the interquartile range

..... m [2]

(ii) the 60th percentile.

..... m [2]

17. June/2023/Paper_0580/43/No.2

(a) Anna records the number of text messages she receives for 14 days.

17	15	31	38	31	22	13
18	21	27	28	21	31	29

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

1	
2	
3	

Key: .....

[3]

(ii) Find the median.

..... [1]

(iii) Find the mode.

..... [1]

(iv) Find the range.

..... [1]

(b) In a shop, there are 4 red and 8 grey phones.
Anna and Pete each pick one of these phones at random.

Work out the probability that they both pick a grey phone.

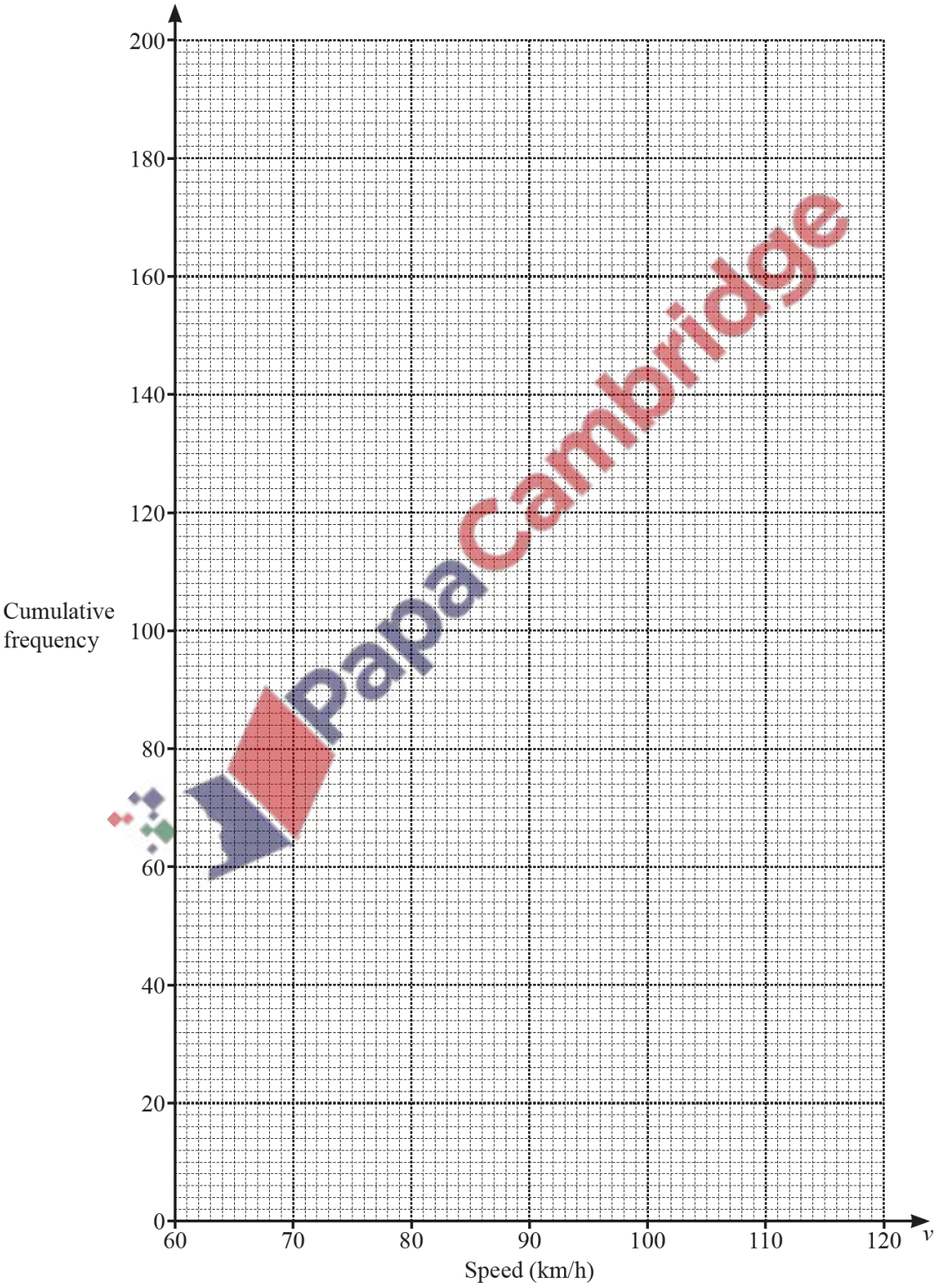
..... [2]

18. June/2023/Paper_0580/43/No.6

(a) The cumulative frequency table shows information about the speed of each of 200 cars as they pass a speed camera.

Speed (v km/h)	$v \leqslant 70$	$v \leqslant 80$	$v \leqslant 90$	$v \leqslant 95$	$v \leqslant 100$	$v \leqslant 120$
Cumulative frequency	12	46	115	155	177	200

(i) On the grid, draw the cumulative frequency diagram.



[3]

(ii) Use your cumulative frequency diagram to find an estimate of

(a) the median

..... km/h [1]

(b) the interquartile range

..... km/h [2]

(c) the number of cars with a speed greater than 110 km/h.

..... [2]

(b) The frequency table shows information about the mass of each of 50 trucks.

Mass (m kg)	$2000 < m \leqslant 2600$	$2600 < m \leqslant 3500$	$3500 < m \leqslant 5000$	$5000 < m \leqslant 5700$
Frequency	12	15	16	7

(i) Calculate an estimate for the mean mass of the trucks.

..... kg [4]

(ii) In a histogram showing this information, the height of the first block is 6 cm.

Calculate the heights of the remaining three blocks.

Height of block for $2600 < m \leqslant 3500$ ..... cm

Height of block for $3500 < m \leqslant 5000$ ..... cm

Height of block for $5000 < m \leqslant 5700$ ..... cm [3]