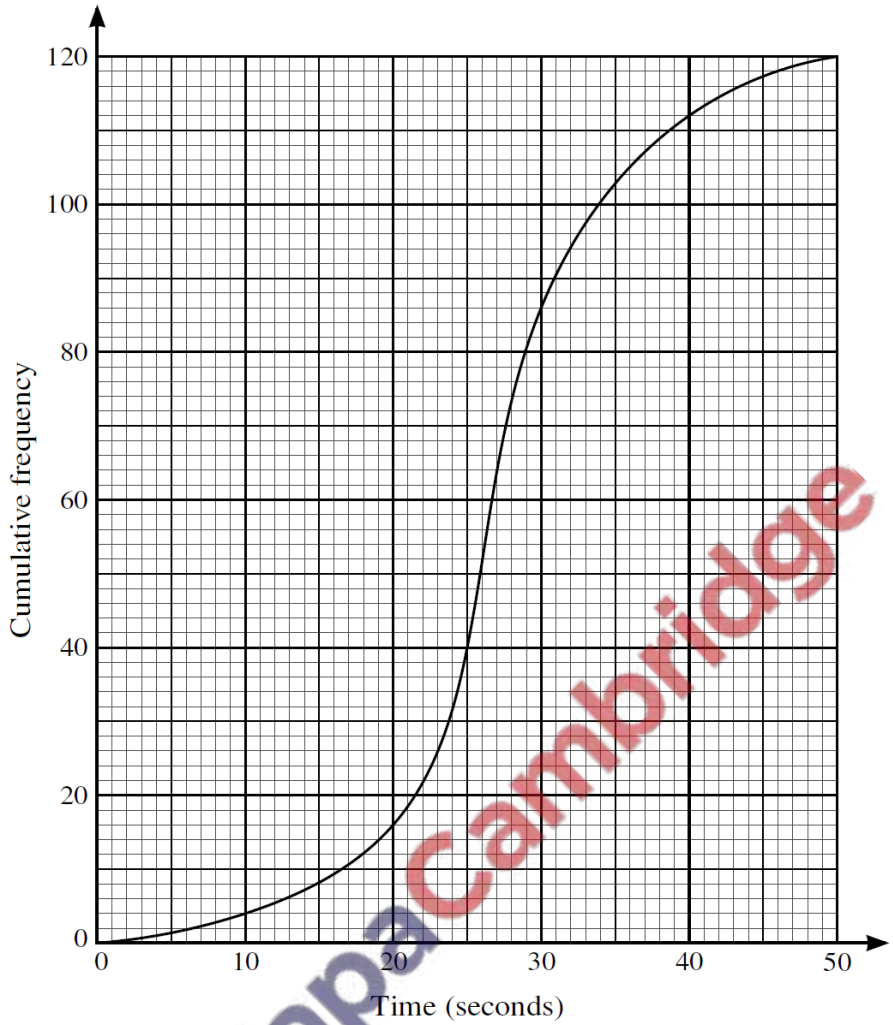
1. Nov/2023/Paper_9709/51/No.1



The times taken by 120 children to complete a particular puzzle are represented in the cumulative frequency graph.

(a) Use the graph to estimate the interquartile range of the data. [2]

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35% of the children took longer than T seconds to complete the puzzle.

(b) Use the graph to estimate the value of T. [2]

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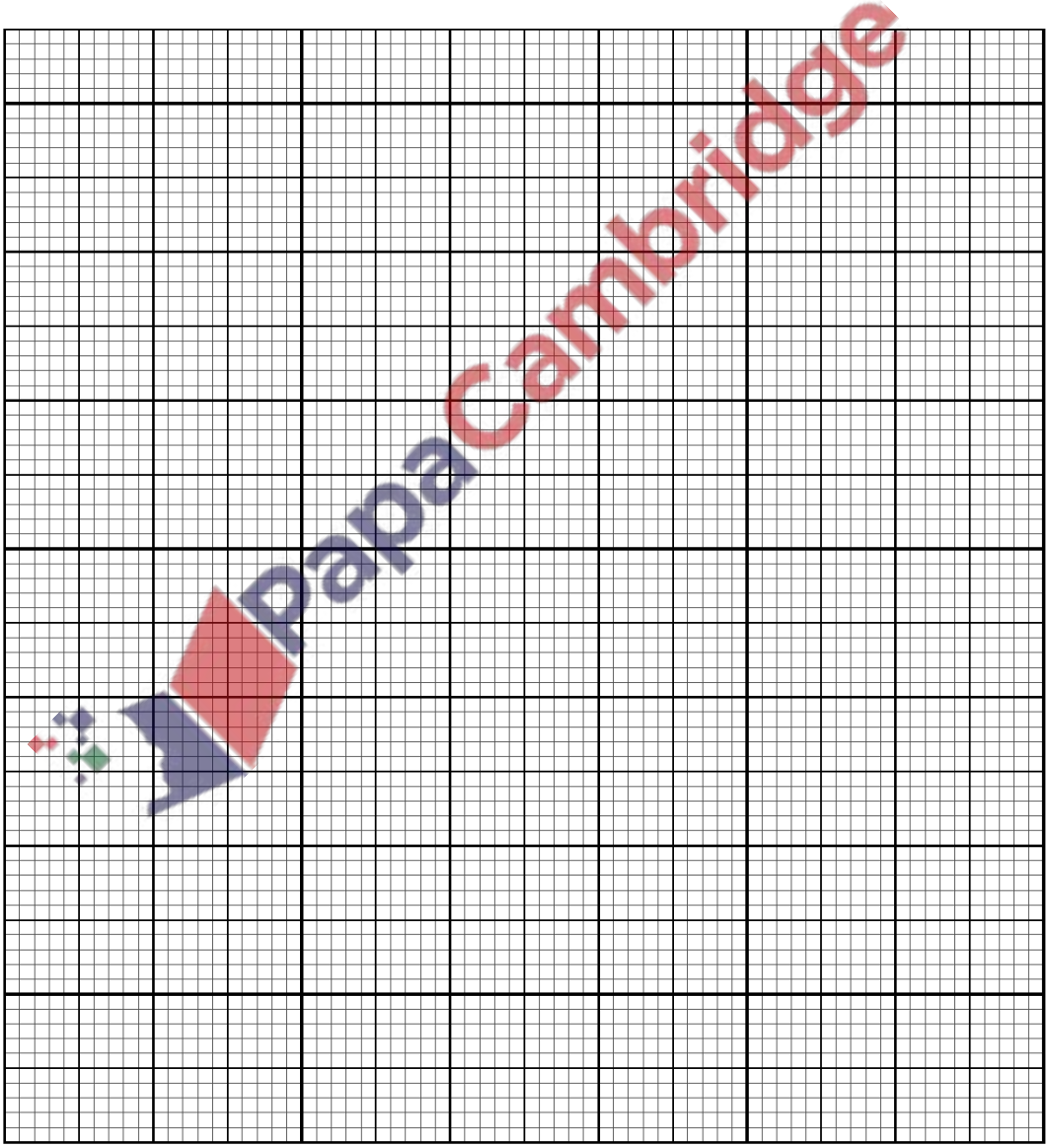
2. Nov/2023/Paper_9709/51/No.4

The times, to the nearest minute, of 150 athletes taking part in a charity run are recorded. The results are summarised in the table.

Time in minutes	101 – 120	121 – 130	131 – 135	136 – 145	146 – 160
Frequency	18	48	34	32	18

(a) Draw a histogram to represent this information. [4]



(b) Calculate estimates for the mean and standard deviation of the times taken by the athletes. [5]

3. Nov/2023/Paper_9709/52/No.4

The heights, in cm, of the 11 players in each of two teams, the Aces and the Jets, are shown in the following table.

Aces	180	174	169	182	181	166	173	182	168	171	164
Jets	175	174	188	168	166	174	181	181	170	188	190

(a) Draw a back-to-back stem-and-leaf diagram to represent this information with the Aces on the left-hand side of the diagram. [4]

(b) Find the median and the interquartile range of the heights of the players in the Aces. [3]

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(c) Give one comment comparing the spread of the heights of the Aces with the spread of the heights of the Jets. [1]

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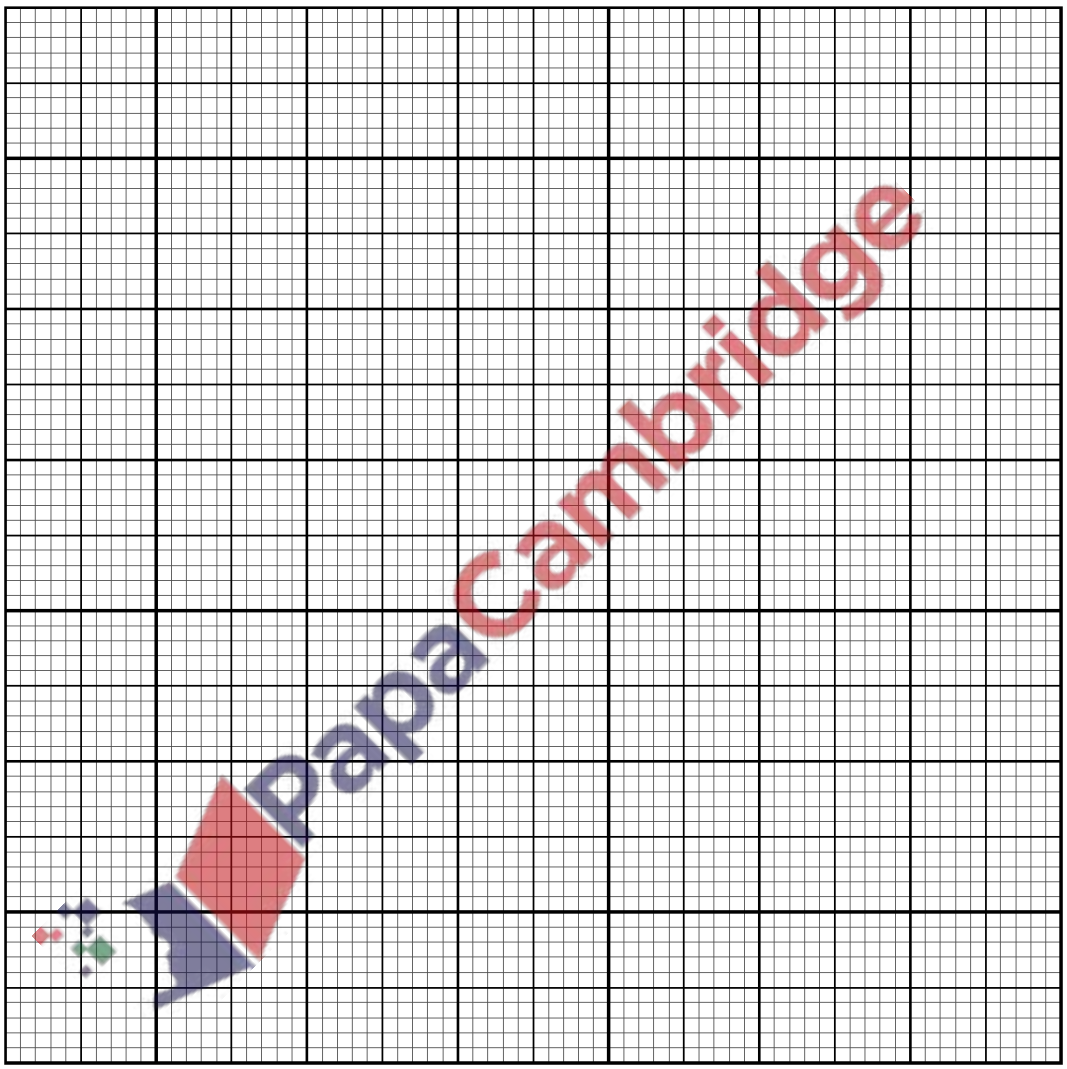
4. Nov/2023/Paper_9709/53/No.4

The weights, x kg, of 120 students in a sports college are recorded. The results are summarised in the following table.

Weight (x kg)	$x \leqslant 40$	$x \leqslant 60$	$x \leqslant 65$	$x \leqslant 70$	$x \leqslant 85$	$x \leqslant 100$
Cumulative frequency	0	14	38	60	106	120

(a) Draw a cumulative frequency graph to represent this information. [2]



(b) It is found that 35% of the students weigh more than W kg.

Use your graph to estimate the value of W. [2]

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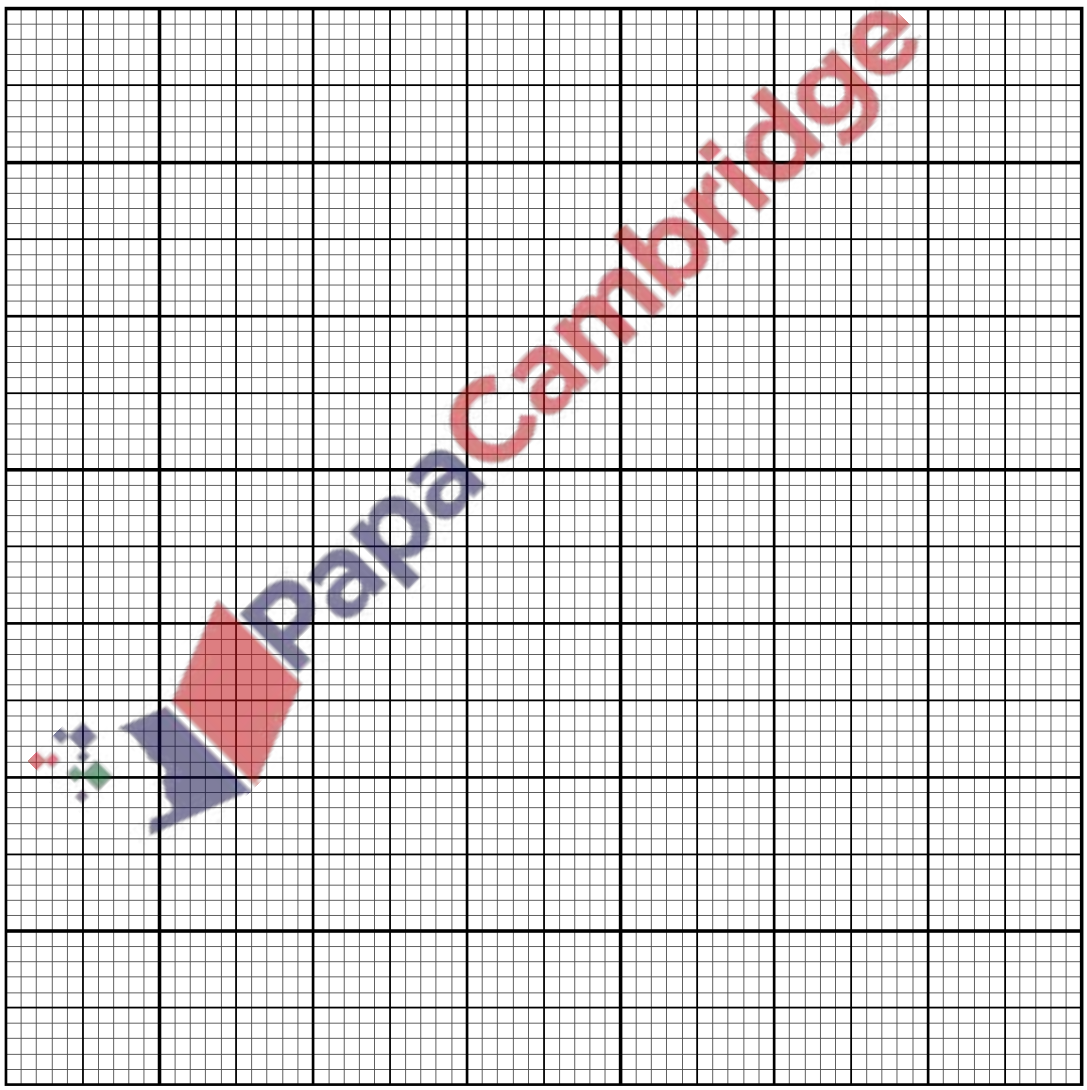
(c) Calculate estimates for the mean and standard deviation of the weights of the 120 students. [6]

5. March/2023/Paper_9709/52/No.1

Each year the total number of hours, x, of sunshine in Kintoo is recorded during the month of June. The results for the last 60 years are summarised in the table.

x	$30 \leqslant x < 60$	$60 \leqslant x < 90$	$90 \leqslant x < 110$	$110 \leqslant x < 140$	$140 \leqslant x < 180$	$180 \leqslant x \leqslant 240$
Number of years	4	8	14	25	7	2

(a) Draw a cumulative frequency graph to illustrate the data. [3]



(b) Use your graph to estimate the 70th percentile of the data. [2]

(c) Calculate an estimate for the mean number of hours of sunshine in Kintoo during June over the last 60 years. [3]