Cumulative frequency diagrams

Grade 5 | Foundation and Higher | 5 questions, 23 marks

GCSE Statistics topic practice

Name: _____ **Date:** _____ **Score:** _____ **/ 23**

1 The table shows information about the weights, w kg, of 60 parcels at a sorting office.

Weight, w (kg)	Frequency	Cumulative frequency
$0 < w \leq 2$	7	7
$2 < w \leq 4$	15	
$4 < w \leq 6$	20	
$6 < w \leq 8$	12	
$8 < w \leq 10$	6	

a. Complete the cumulative frequency column. (2)

b. Work out the number of parcels that weigh more than 6 kg. (1)

c. Tariq is going to draw a cumulative frequency diagram for this information. He plots his first point at (1, 7). Explain what Tariq has done wrong. (1)

(4 marks)

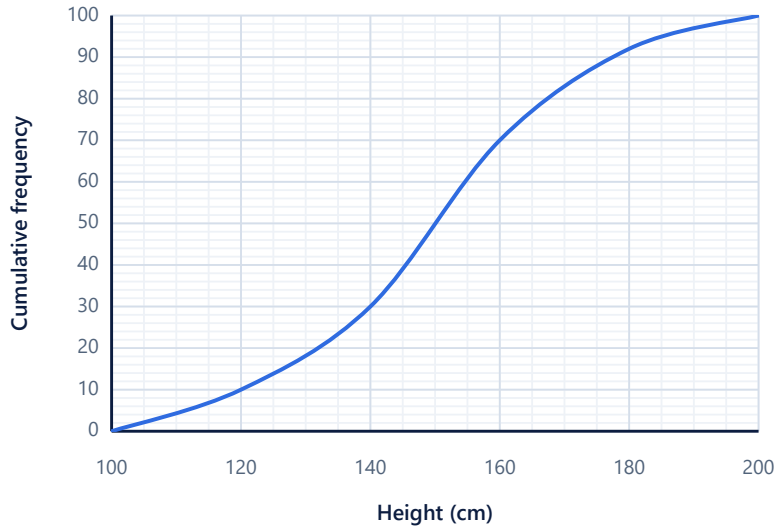
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2 A garden centre measures the heights of 100 sunflower plants. The cumulative frequency diagram shows the results.

a. Write down the number of plants with a height of 140 cm or less. (1)

b. Use the diagram to find an estimate for the median height. (1)

c. Use the diagram to find an estimate for the number of plants that are taller than 170 cm. (2)



(4 marks)

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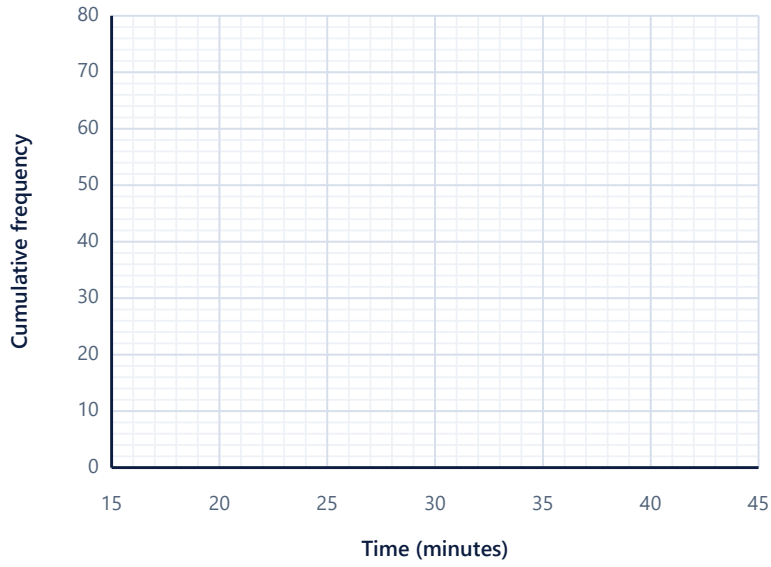
3 The cumulative frequency table shows the times, t minutes, taken by 80 runners to finish a 5 km run. No runner took 15 minutes or less.

Time, t (minutes)	**$t \leq 20$**	**$t \leq 25$**	**$t \leq 30$**	**$t \leq 35$**	**$t \leq 40$**	**$t \leq 45$**
Cumulative frequency	4	18	46	68	78	80

a. On the grid, draw a cumulative frequency diagram for this information. (2)

b. Use your diagram to find an estimate for the median time. (1)

c. Use your diagram to find an estimate for the number of runners who took more than 37 minutes. (2)



(5 marks)

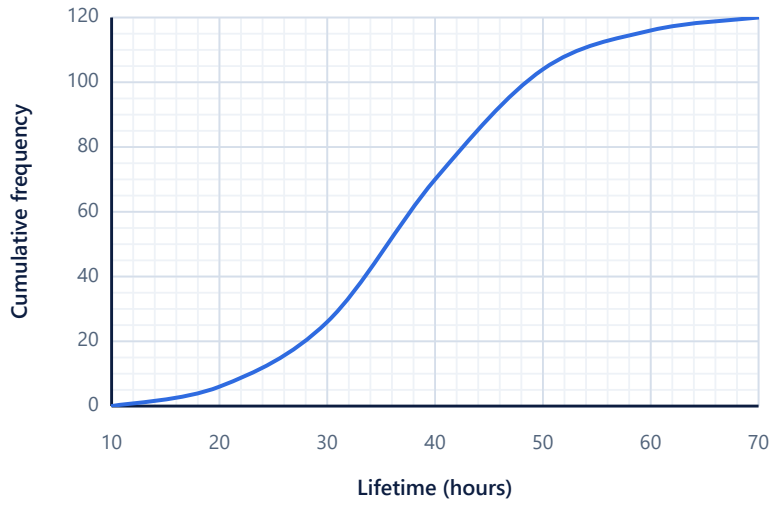
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4 A company tests 120 batteries. The cumulative frequency diagram shows how long, in hours, the batteries lasted.

a. Use the diagram to find an estimate for the median. (1)

b. Use the diagram to find an estimate for the interquartile range. (2)

c. The company claims that at least 75% of its batteries last for more than 30 hours. Does the diagram support this claim? Give a reason for your answer. (2)



(5 marks)

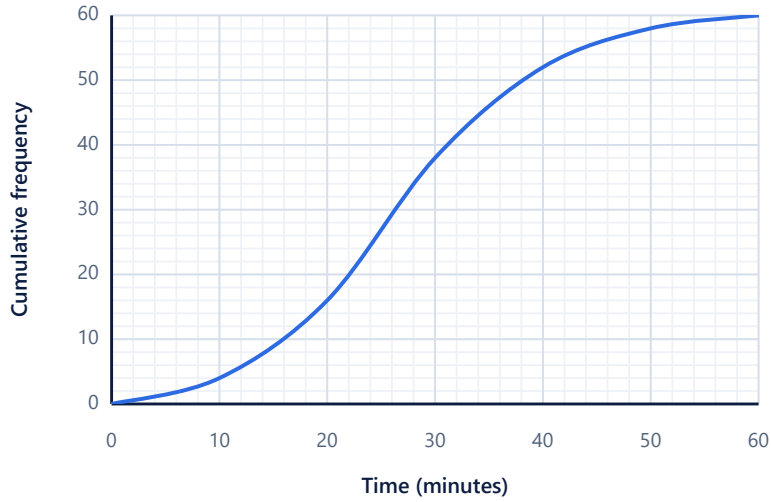
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5 The cumulative frequency diagram shows the times, t minutes, taken for 60 takeaway deliveries.

Time, t (minutes)	**$0 < t \leq 10$**	**$10 < t \leq 20$**	**$20 < t \leq 30$**	**$30 < t \leq 40$**	**$40 < t \leq 50$**	**$50 < t \leq 60$**
Frequency	4					

a. Use the diagram to complete the frequency table. (3)

b. Use the diagram to find an estimate for the number of deliveries that took between 25 minutes and 45 minutes. (2)



(5 marks)

End of questions | Total 23 marks

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