Cumulative Frequency Graph Past Paper Questions

GCSE Edexcel – None Calculator

1.

13 Charlotte grows some potatoes.

The table shows information about the weights of her potatoes.

Weight (w grams)	Frequency
$100 < w \leqslant 120$	5
$120 < w \leqslant 140$	25
$140 < w \leqslant 160$	30
$160 < w \leqslant 180$	15
$180 < w \leqslant 200$	5

(a) Complete the cumulative frequency table.

Weight (w grams)	Cumulative frequency
$100 < w \leqslant 120$	
$100 < w \leqslant 140$	
$100 < w \leqslant 160$	
$100 < w \leqslant 180$	
$100 < w \leqslant 200$	

(1)

(b) On the grid opposite, draw a cumulative frequency graph for your table.

(2)

Cumulative frequency (y-axis), **Weight (w grams)** (x-axis)
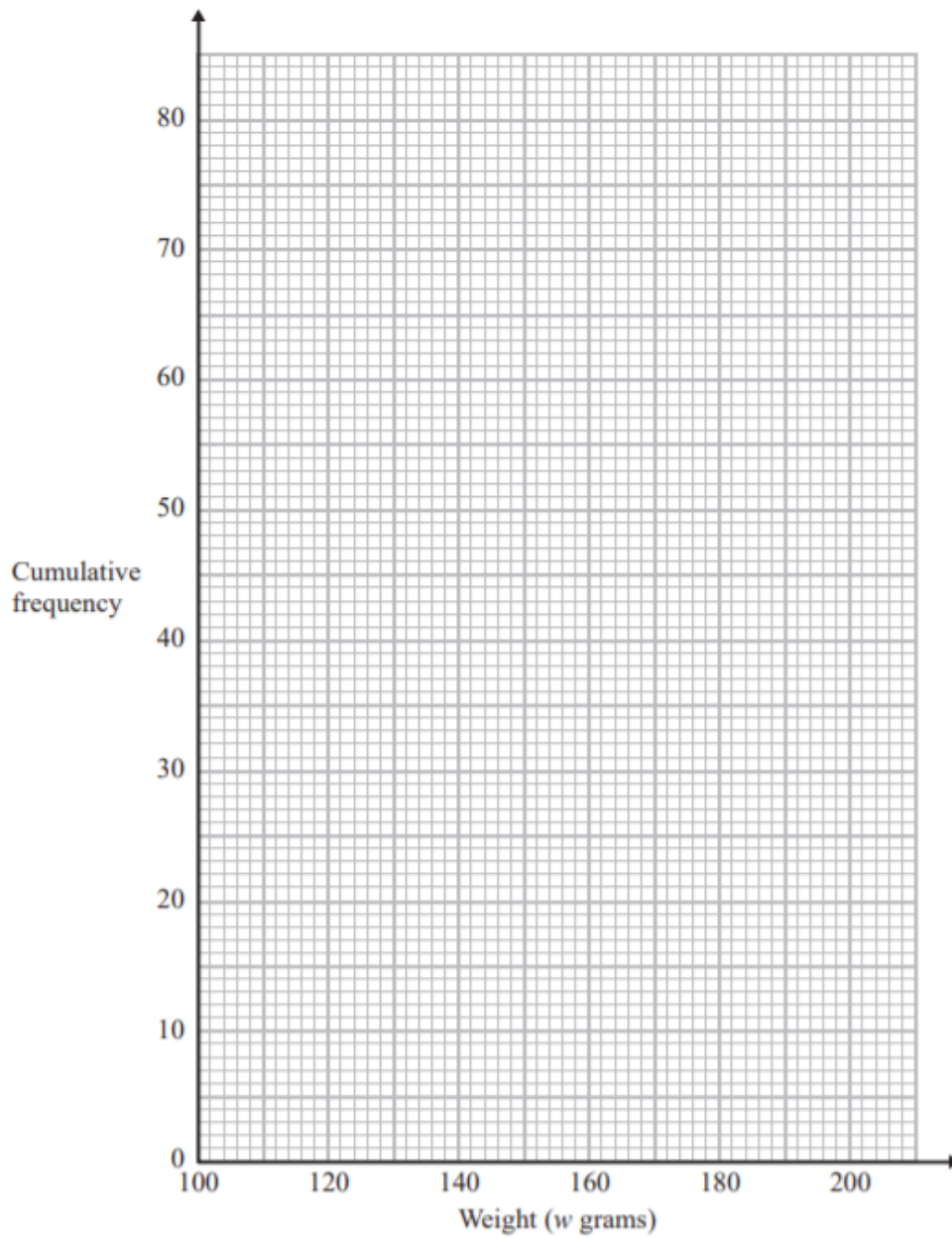
(c) Use your graph to find an estimate for the interquartile range.
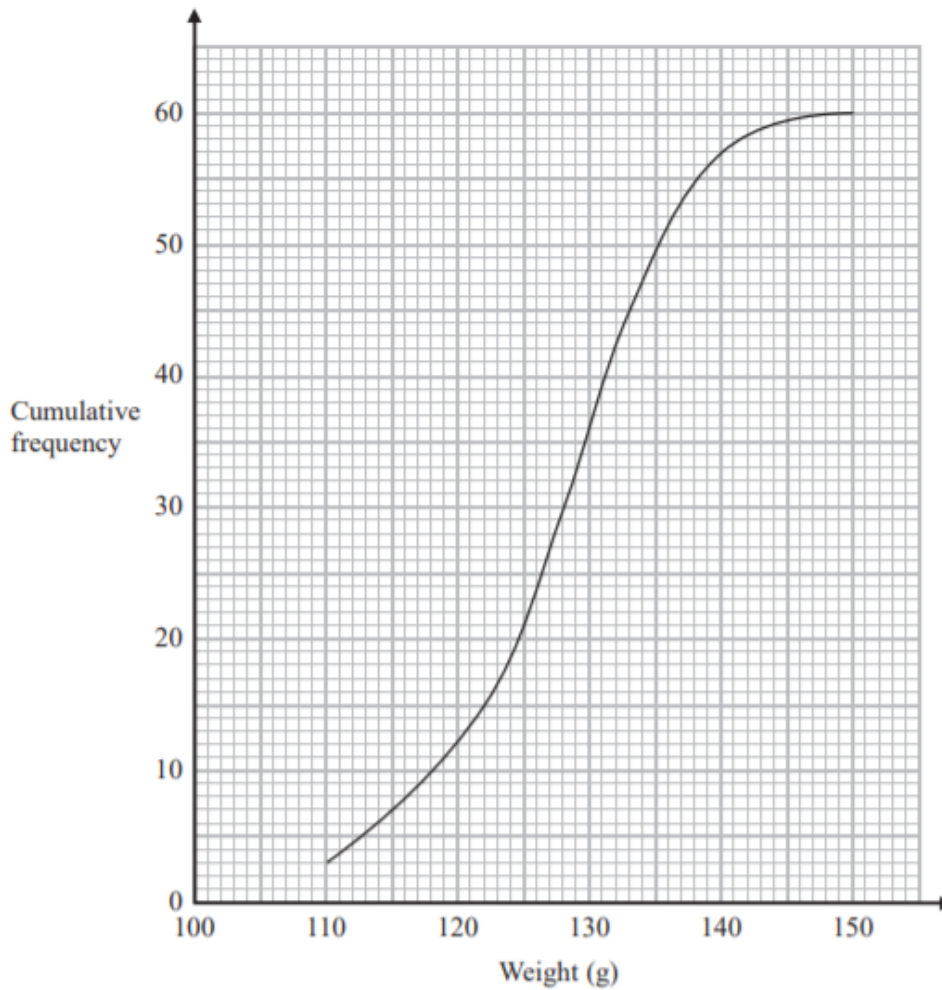
.... grams

(2)

(d) Use your graph to find an estimate for the percentage of Charlotte's potatoes with a weight less than 150 grams.

.... %

(3)

(Total for Question 13 is 8 marks)

2.

16 The cumulative frequency graph shows information about the weights of 60 apples.

(a) Use the graph to find an estimate for the median weight.

....................................g

(1)

(b) Use the graph to find an estimate for the interquartile range of the weights.

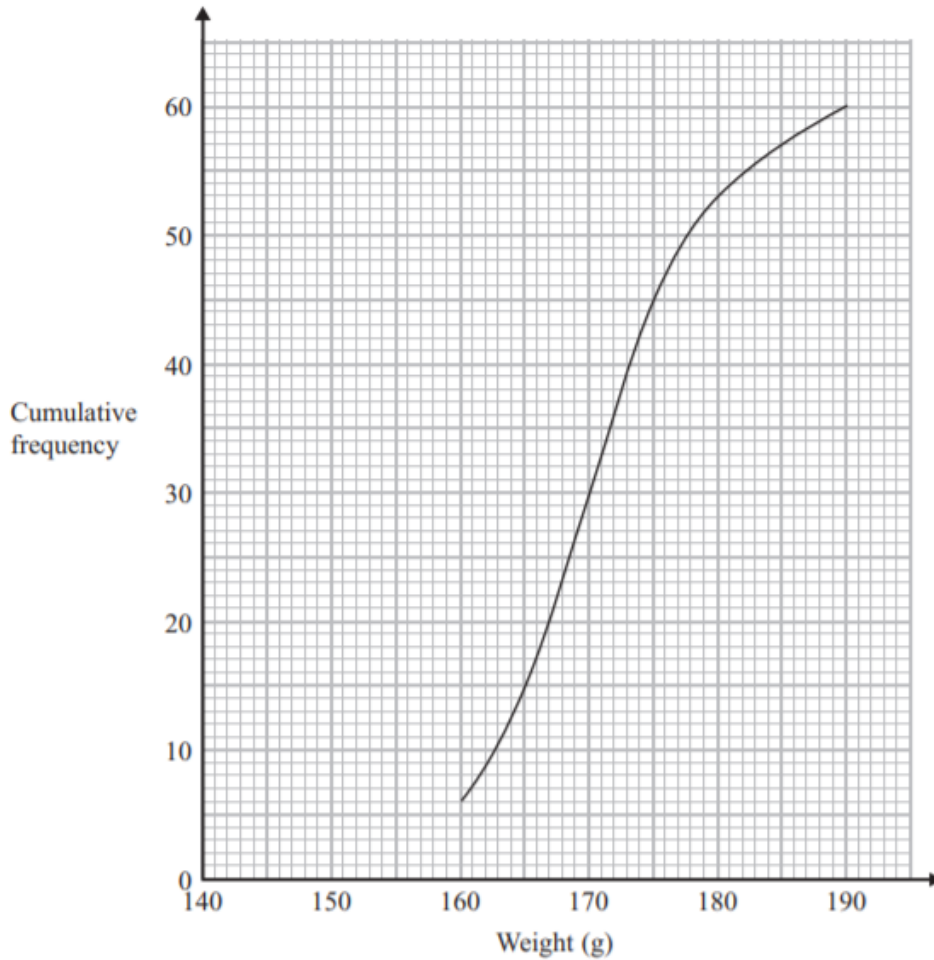....................................g

(2)

(Total for Question 16 is 3 marks)

3.

15 Harry grows tomatoes.
This year he put his tomato plants into two groups, group A and group B.

Harry gave fertiliser to the tomato plants in group A.
He did not give fertiliser to the tomato plants in group B.

Harry weighed 60 tomatoes from group A.
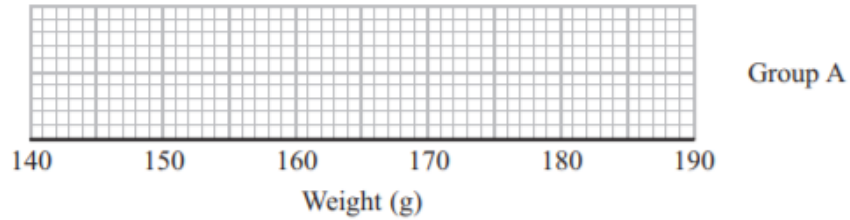The cumulative frequency graph shows some information about these weights.

(a) Use the graph to find an estimate for the median weight.

.... g

(1)

The 60 tomatoes from group A
        had a minimum weight of 153 grams
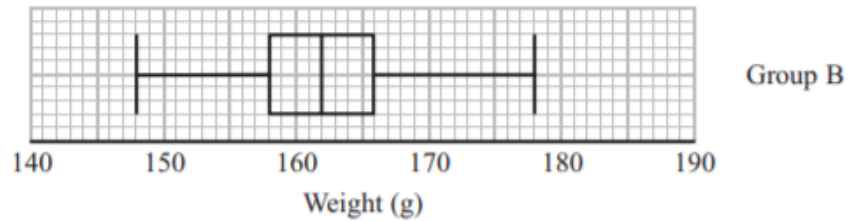   and a maximum weight of 186 grams.

(b) Use this information and the cumulative frequency graph to draw a box plot
    for the 60 tomatoes from group A.

Group A

Weight (g)

(3)

Harry did not give fertiliser to the tomato plants in group B.

Harry weighed 60 tomatoes from group B.
He drew this box plot for his results.

Group B

Weight (g)

(c) Compare the distribution of the weights of the tomatoes from group A with the
    distribution of the weights of the tomatoes from group B.

....

....

....

....

(2)

(Total for Question ` is 6 marks)

4

The table below shows information about the heights of 60 students.

Height (x cm)	Number of students
$140 < x \leqslant 150$	4
$150 < x \leqslant 160$	5
$160 < x \leqslant 170$	16
$170 < x \leqslant 180$	27
$180 < x \leqslant 190$	5
$190 < x \leqslant 200$	3

(a) On the grid opposite, draw a cumulative frequency graph
for the information in the table.

(3)
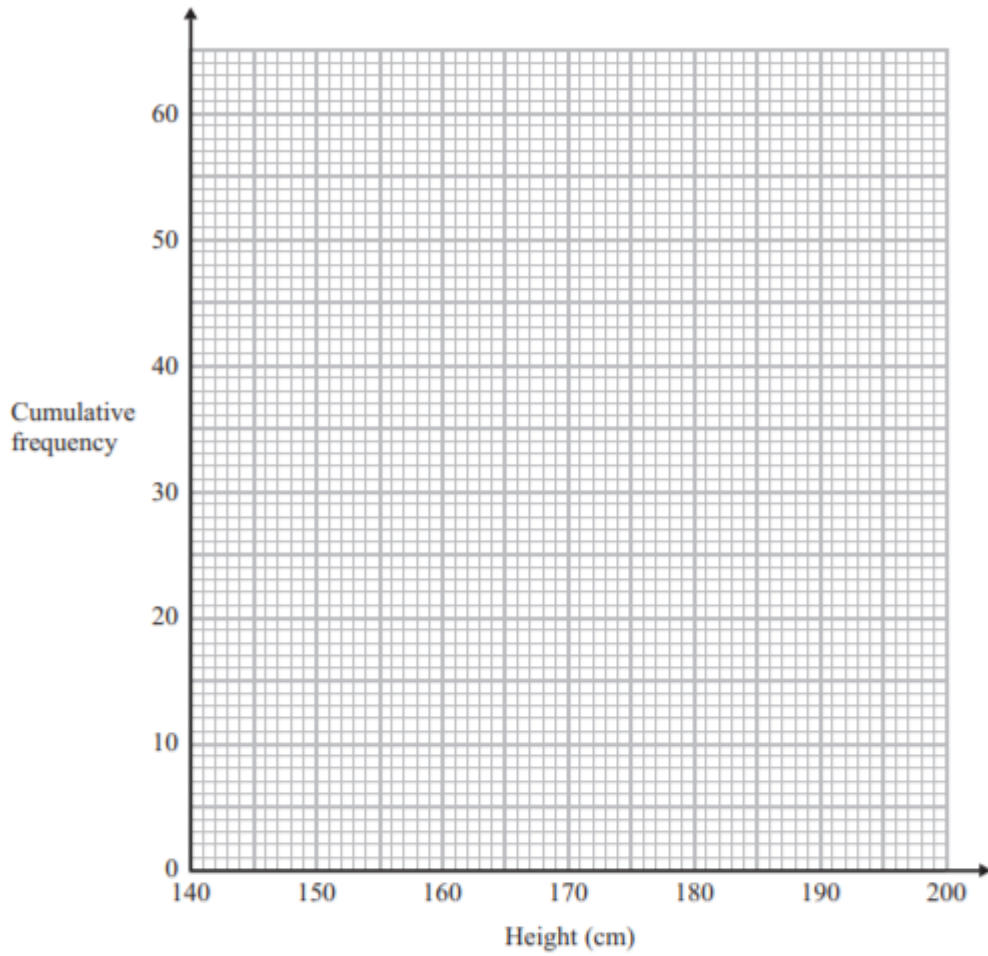
(b) Find an estimate

   (i) for the median,

.... cm

   (ii) for the interquartile range.

.... cm

(3)

(Total for Question 2 is 6 marks)

5.

The table shows information about the times taken by 100 people in a fun run.

Time (t minutes)	Frequency
$20 < t \leqslant 30$	4
$30 < t \leqslant 40$	16
$40 < t \leqslant 50$	36
$50 < t \leqslant 60$	24
$60 < t \leqslant 70$	14
$70 < t \leqslant 80$	6

(a) Complete the cumulative frequency table for this information.

Time (t minutes)	Cumulative frequency
$20 < t \leqslant 30$	
$20 < t \leqslant 40$	
$20 < t \leqslant 50$	
$20 < t \leqslant 60$	
$20 < t \leqslant 70$	
$20 < t \leqslant 80$	

(1)

(b) On the grid, draw a cumulative frequency graph for your table.

(2)
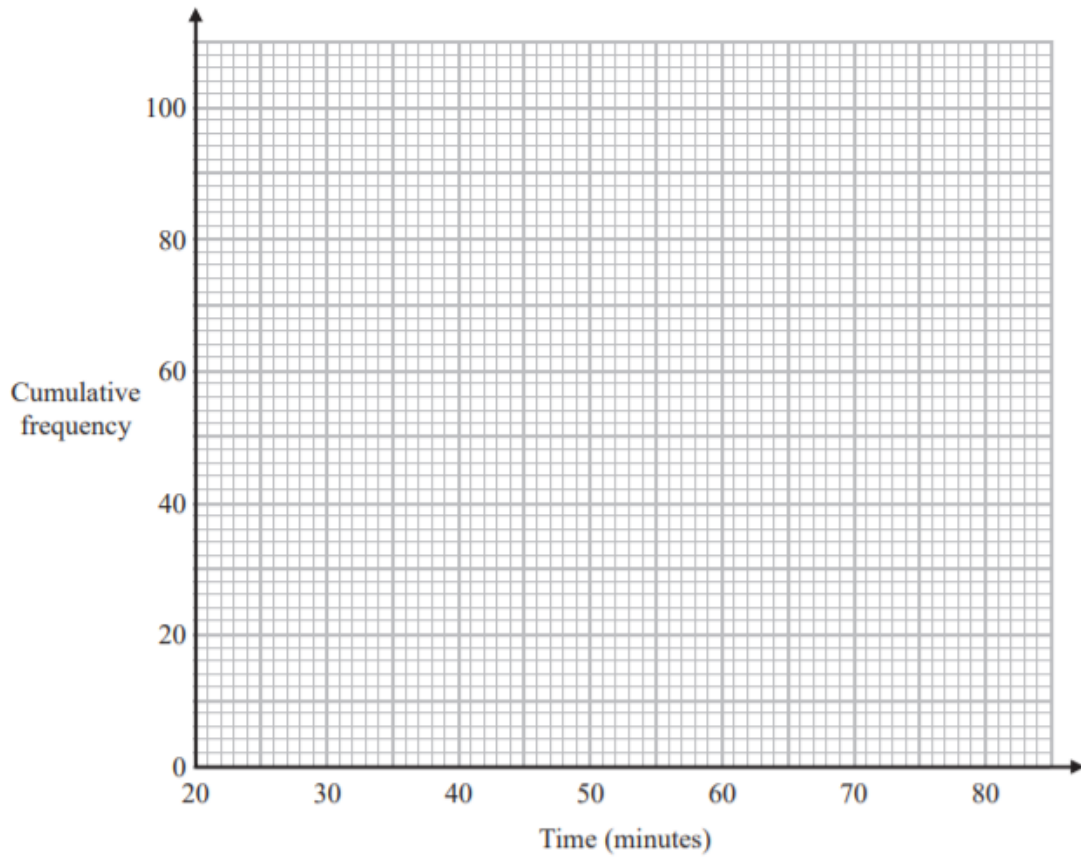
(c) Use your graph to find an estimate for the median time.

.... minutes

(1)

(d) Use your graph to find an estimate for the number of people who took longer than 63 minutes.

....

(2)

(Total for Question 16 is 6 marks)

6.

The table gives information about the marks gained by some students in an exam.

Mark (m)	Frequency
$0 < m \leqslant 20$	40
$20 < m \leqslant 40$	70
$40 < m \leqslant 60$	60
$60 < m \leqslant 80$	15
$80 < m \leqslant 100$	10
$100 < m \leqslant 120$	5

(a) Complete the cumulative frequency table for this information.

Mark (m)	Cumulative frequency
$0 < m \leqslant 20$	
$0 < m \leqslant 40$	
$0 < m \leqslant 60$	
$0 < m \leqslant 80$	
$0 < m \leqslant 100$	
$0 < m \leqslant 120$	

(1)

(b) On the grid, draw a cumulative frequency graph for your table.

Cumulative frequency

Mark

(2)
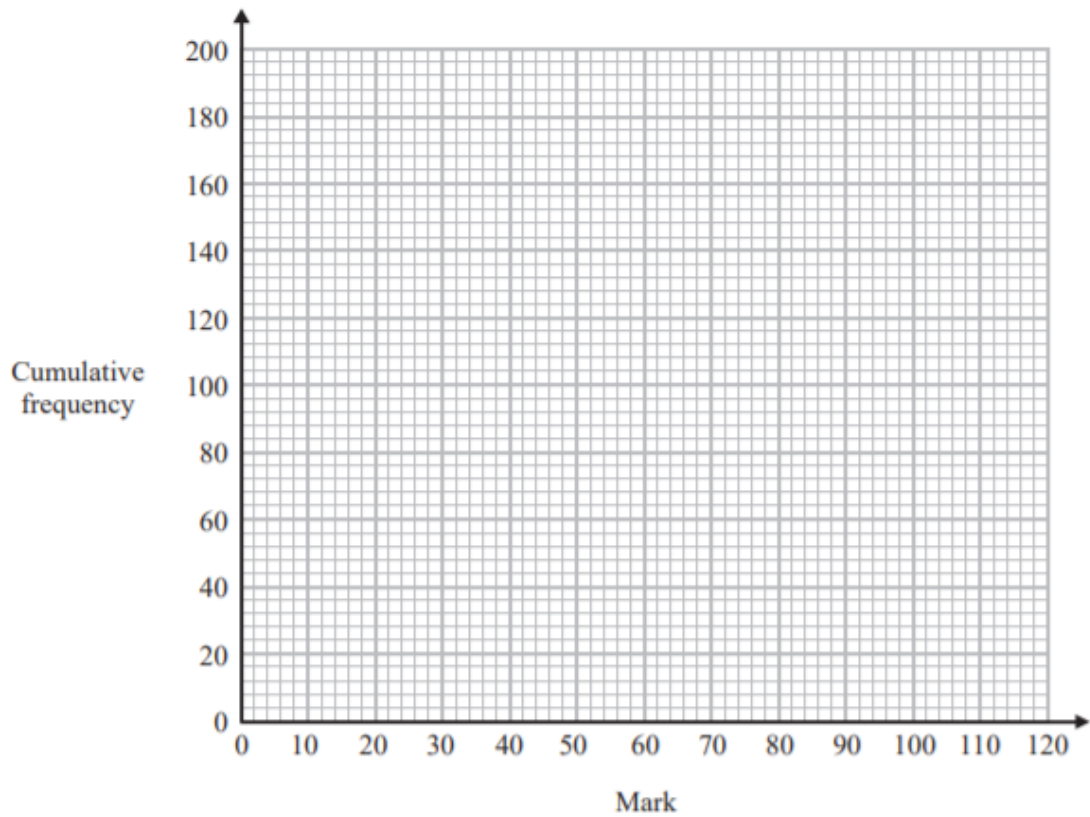
(c) Use your graph to find an estimate for the number of students who gained a mark of more than 54

(2)

(Total for Question   is 5 marks)

7.

The grouped frequency table shows information about the weekly wages of 80 factory workers.

Weekly wage (£x)	Frequency
$100 < x \leqslant 200$	8
$200 < x \leqslant 300$	15
$300 < x \leqslant 400$	30
$400 < x \leqslant 500$	17
$500 < x \leqslant 600$	7
$600 < x \leqslant 700$	3

(a) Complete the cumulative frequency table.

Weekly wage (£x)	Cumulative Frequency
$100 < x \leqslant 200$	
$100 < x \leqslant 300$	
$100 < x \leqslant 400$	
$100 < x \leqslant 500$	
$100 < x \leqslant 600$	
$100 < x \leqslant 700$	

(1)

(b) On the grid opposite, draw a cumulative frequency graph for your table.

(2)

(c) Use your graph to find an estimate for the interquartile range.

£ ....

(2)

(d) Use your graph to find an estimate for the number of workers with a weekly wage of more than £530

....

(2)

Cumulative
frequency

Weekly wage (£)
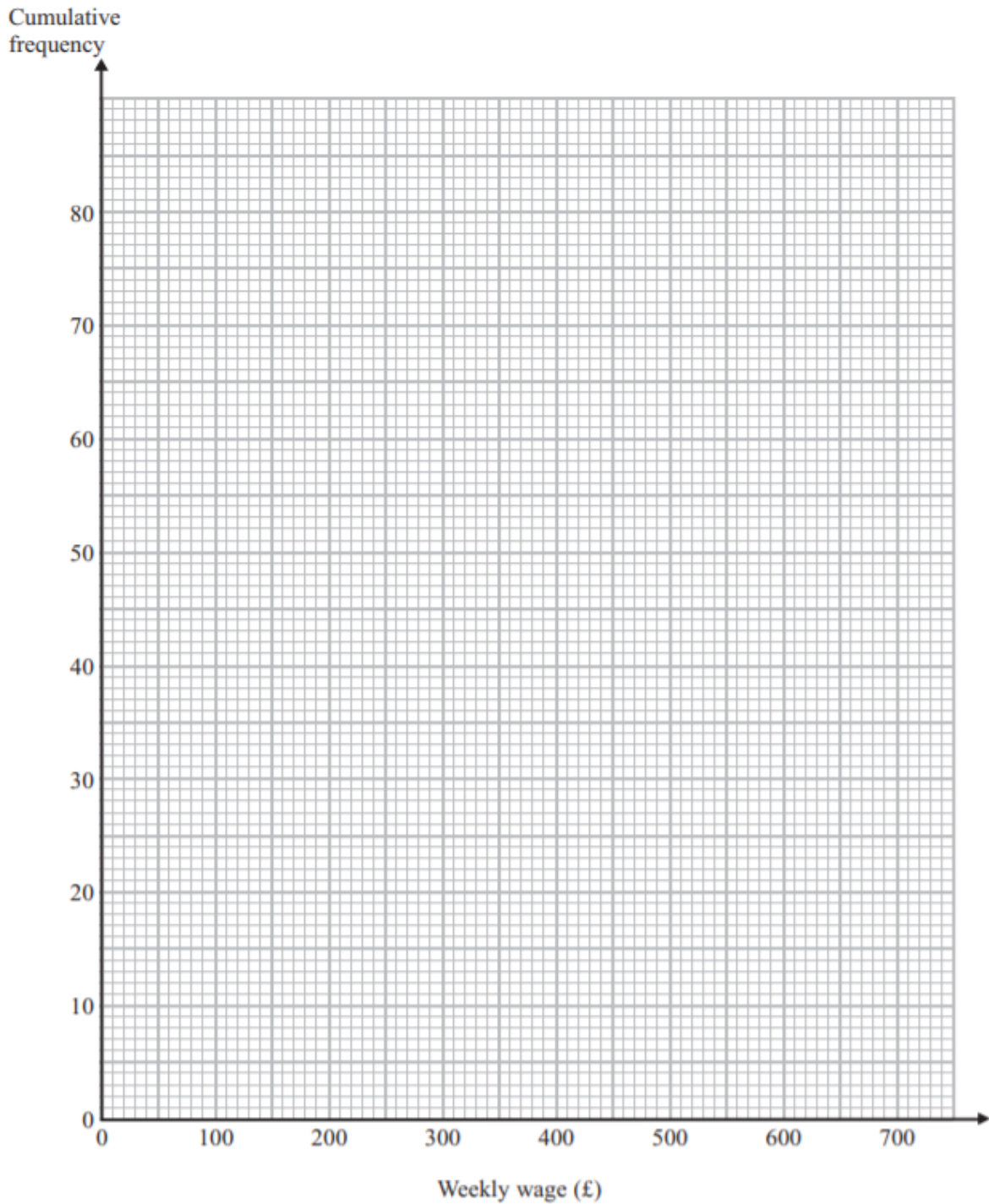
(Total for Question   is 7 marks)

8.

Sue works for a company that delivers parcels.

One day the company delivered 80 parcels.
The table shows information about the weights, in kg, of these parcels.

Weight (w kg)	Frequency
$0 < w \leqslant 1$	19
$1 < w \leqslant 2$	17
$2 < w \leqslant 3$	15
$3 < w \leqslant 4$	12
$4 < w \leqslant 5$	10
$5 < w \leqslant 6$	7

(a) Complete the cumulative frequency table.

Weight (w kg)	Cumulative frequency
$0 < w \leqslant 1$	
$0 < w \leqslant 2$	
$0 < w \leqslant 3$	
$0 < w \leqslant 4$	
$0 < w \leqslant 5$	
$0 < w \leqslant 6$	

(1)

(b) On the grid opposite, draw a cumulative frequency graph for your table.

(2)

Cumulative frequency

Weight (w kg)
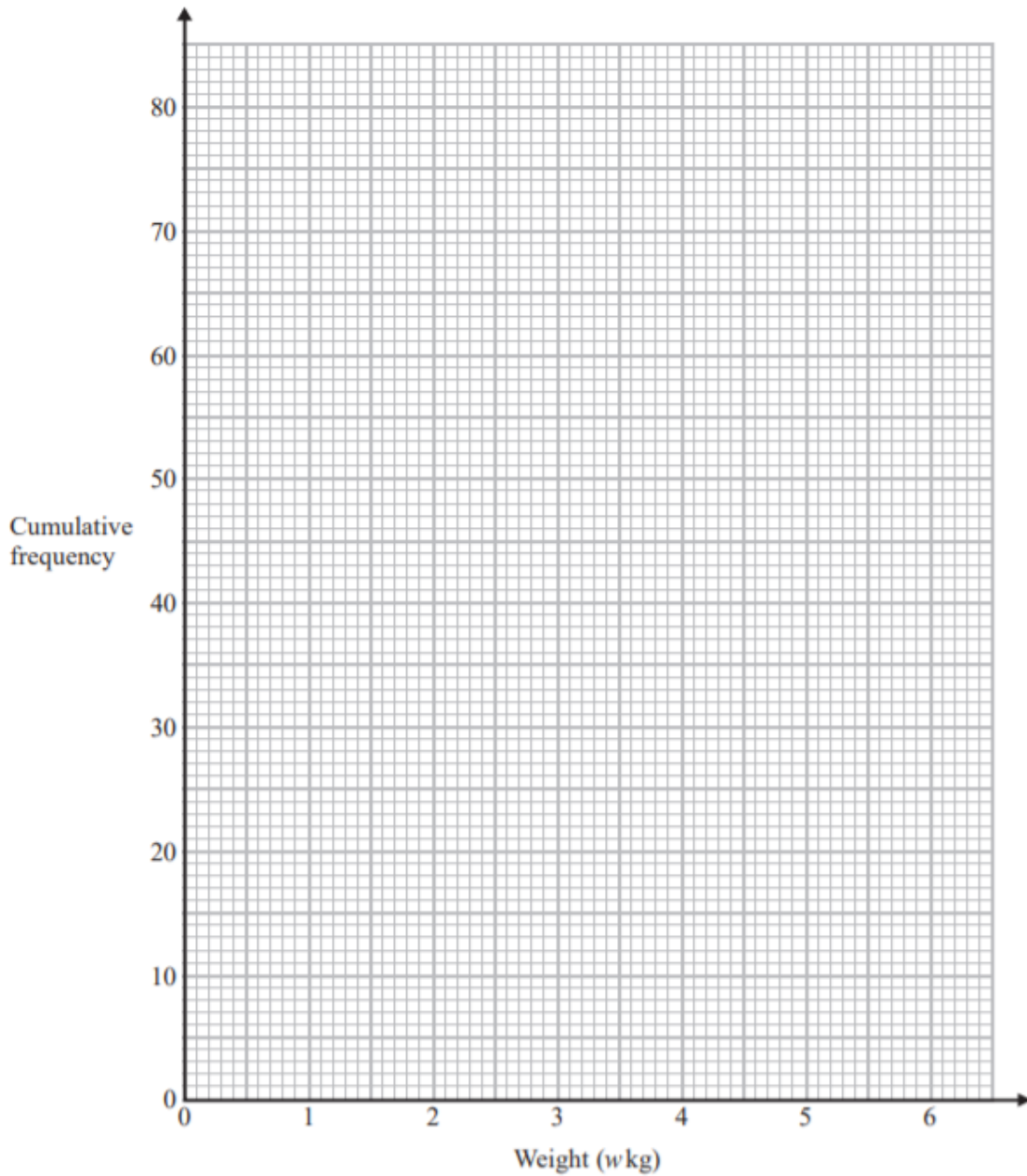
Sue says,

"75 % of the parcels weigh less than 3.4 kg."

*(c) Is Sue correct?

You must show how you get your answer.

(3)

(Total for Question 15 is 6 marks)

9.

There are 200 workers at a factory.

The cumulative frequency table gives information about their ages.

Age (a years)	Cumulative frequency
$0 < a \leqslant 20$	25
$0 < a \leqslant 30$	70
$0 < a \leqslant 40$	138
$0 < a \leqslant 50$	175
$0 < a \leqslant 60$	186
$0 < a \leqslant 70$	194
$0 < a \leqslant 80$	200

(a) On the grid opposite, draw a cumulative frequency graph for this information.

(2)

(b) Graham says,

"10% of workers at the factory are older than 65"

Is Graham correct?
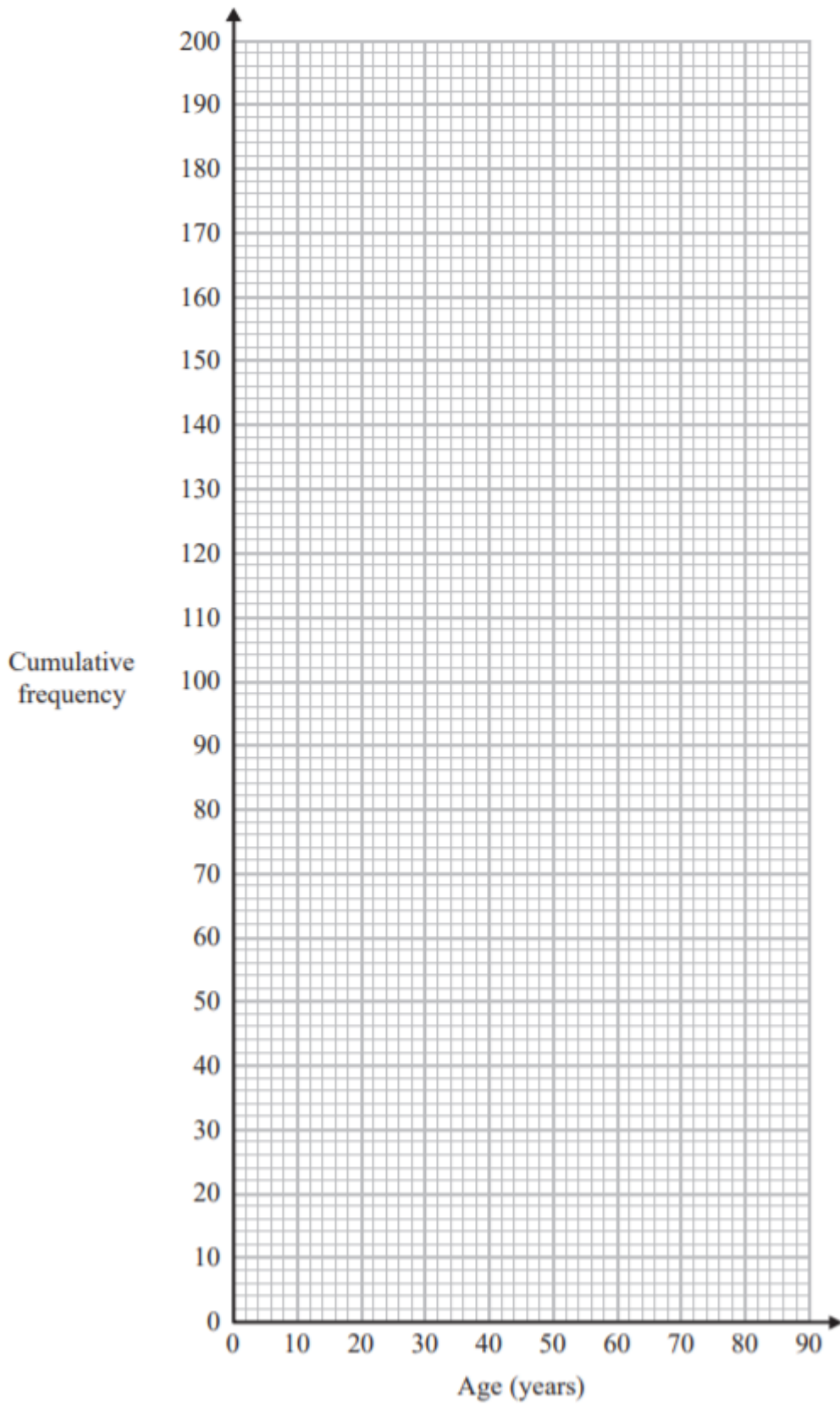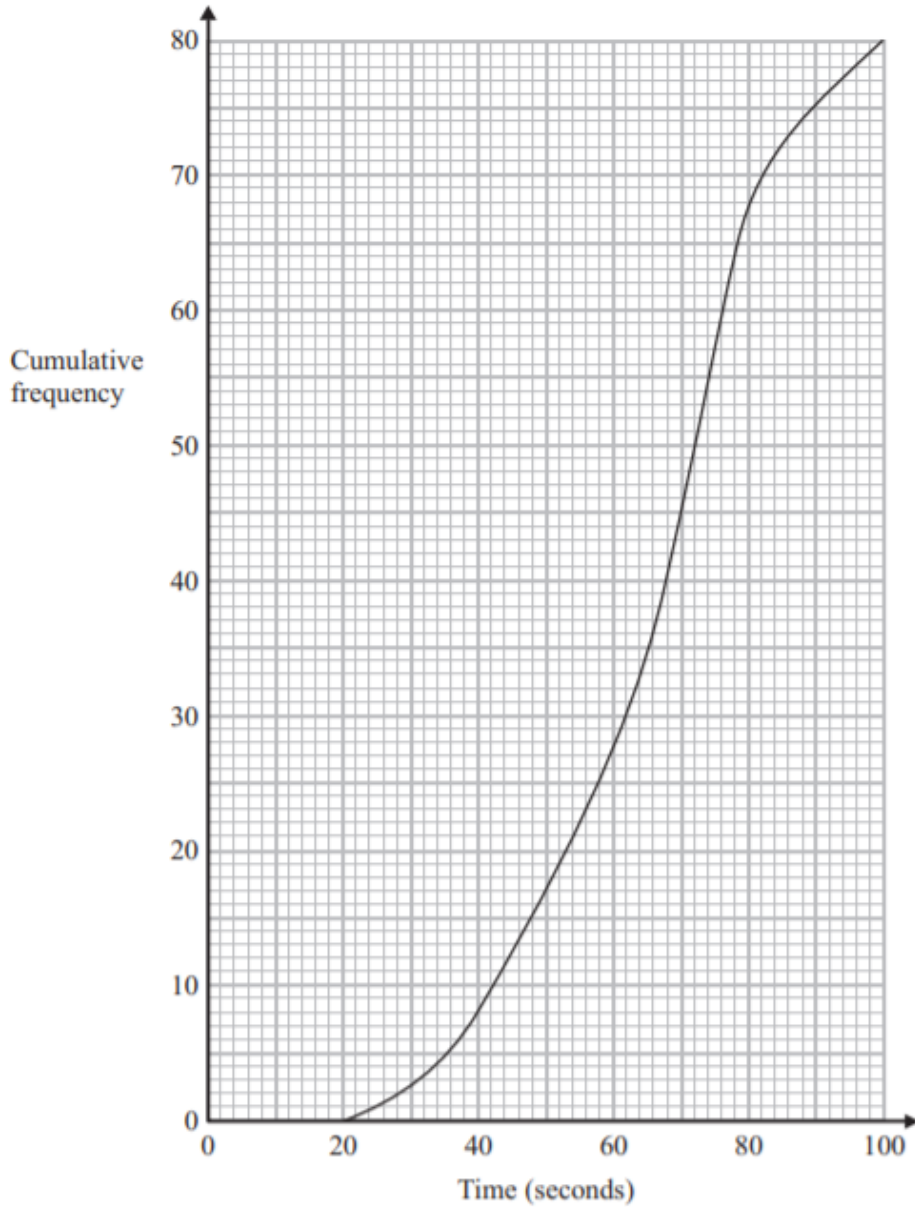You must show how you get your answer.

....

....

....

....

(2)

Cumulative frequency

Age (years)

(Total for Question 1 is 4 marks)

10.

The cumulative frequency graph shows information about the times 80 swimmers take to swim 50 metres.

(a) Use the graph to find an estimate for the median time.

.... seconds

(1)

A swimmer has to swim 50 metres in 60 seconds or less to qualify for the swimming team.

The team captain says,

"More than 25% of swimmers have qualified for the swimming team."
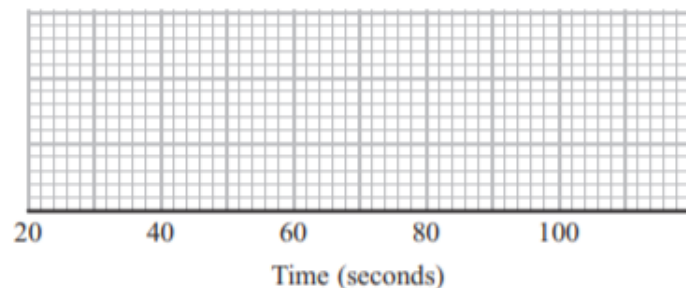
*(b) Is the team captain right?

You must show how you got your answer.

(3)

For these 80 swimmers

the least time taken was 28 seconds
and the greatest time taken was 96 seconds.

(c) Use the cumulative frequency graph and the information above to draw a box plot for the times taken by the swimmers.

Time (seconds)

(3)

(Total for Question   is 7 marks)