

Cumulative Frequency Diagrams

Question Paper 1

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Topic	Handling Data Statistics
Sub Topic	Cumulative Frequency Diagrams(Graphical representation of data)
Booklet	Question Paper 1

Time Allowed: 54 minutes

Score: /45

Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	70%	60%	55%	50%	<50%

1 The table shows information about the weights of 80 parcels.

Weight (w kg)	Frequency
$0 < w \leq 2$	8
$2 < w \leq 4$	14
$4 < w \leq 6$	26
$6 < w \leq 8$	17
$8 < w \leq 10$	10
$10 < w \leq 12$	5

(a) Work out an estimate for the total weight of the 80 parcels.

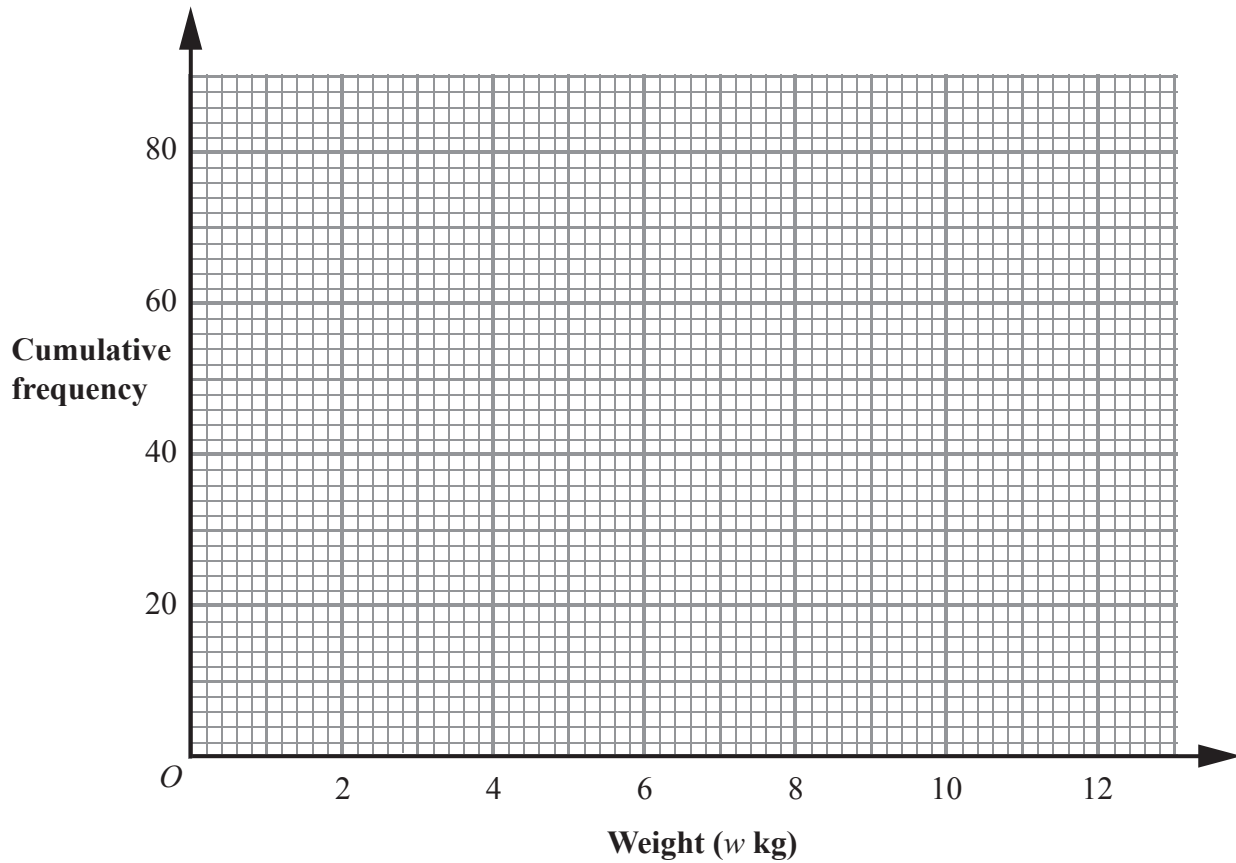
(b) Complete the cumulative frequency table.

..... kg
(3)

Weight (w kg)	Cumulative frequency
$0 < w \leq 2$	
$0 < w \leq 4$	
$0 < w \leq 6$	
$0 < w \leq 8$	
$0 < w \leq 10$	
$0 < w \leq 12$	

(1)

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



(2)

(d) Use the graph to find an estimate for the number of parcels which weighed less than 5.2 kg.

.....
(2)

(Total for Question 1 is 8 marks)

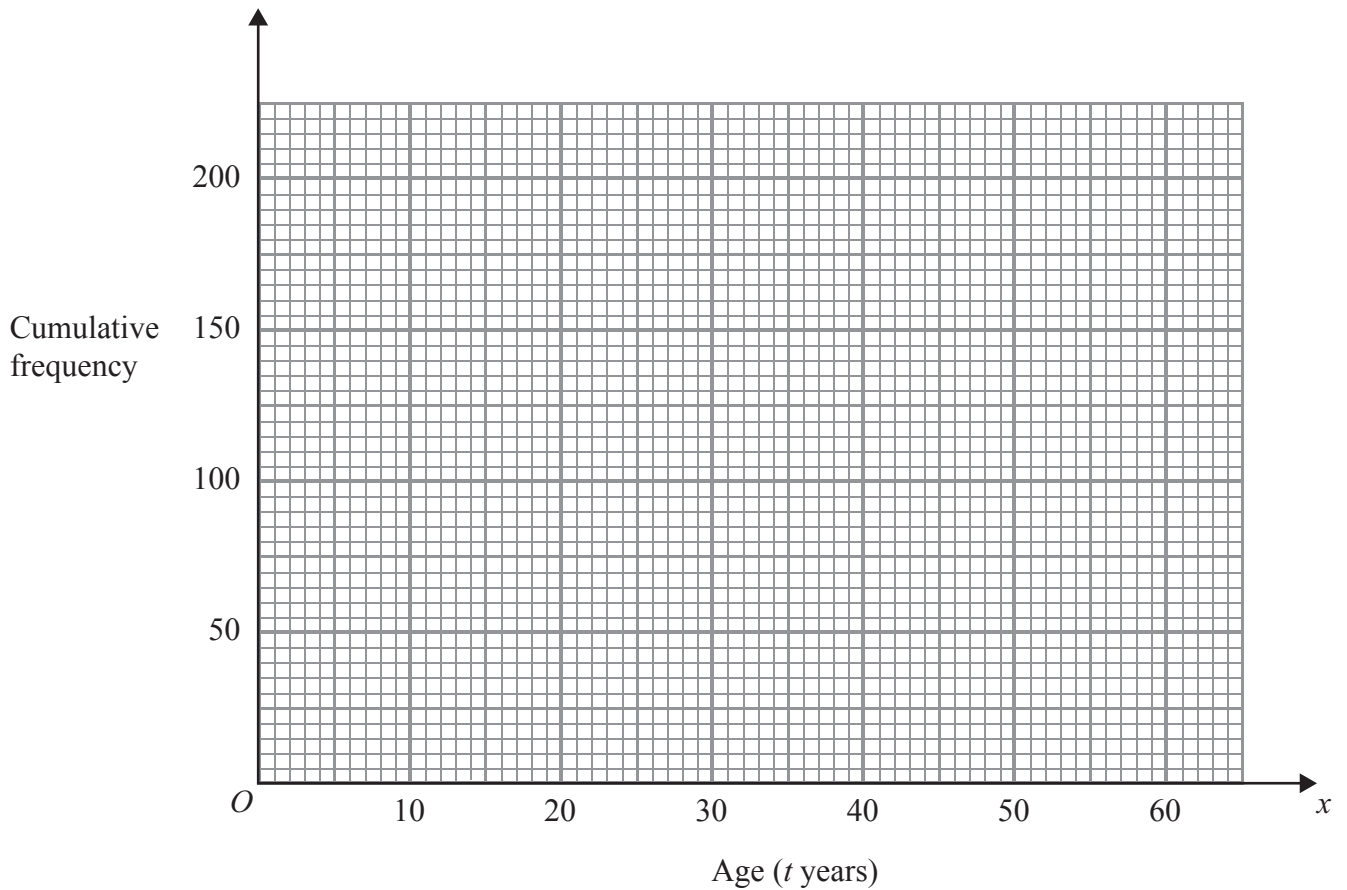
2 The grouped frequency table gives information about the ages of 200 elephants.

Age (t years)	Frequency
$0 < t \leq 10$	55
$10 < t \leq 20$	60
$20 < t \leq 30$	40
$30 < t \leq 40$	22
$40 < t \leq 50$	13
$50 < t \leq 60$	10

(a) Complete the cumulative frequency table.

Age (t years)	Cumulative frequency
$0 < t \leq 10$	
$0 < t \leq 20$	
$0 < t \leq 30$	
$0 < t \leq 40$	
$0 < t \leq 50$	
$0 < t \leq 60$	

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



(2)

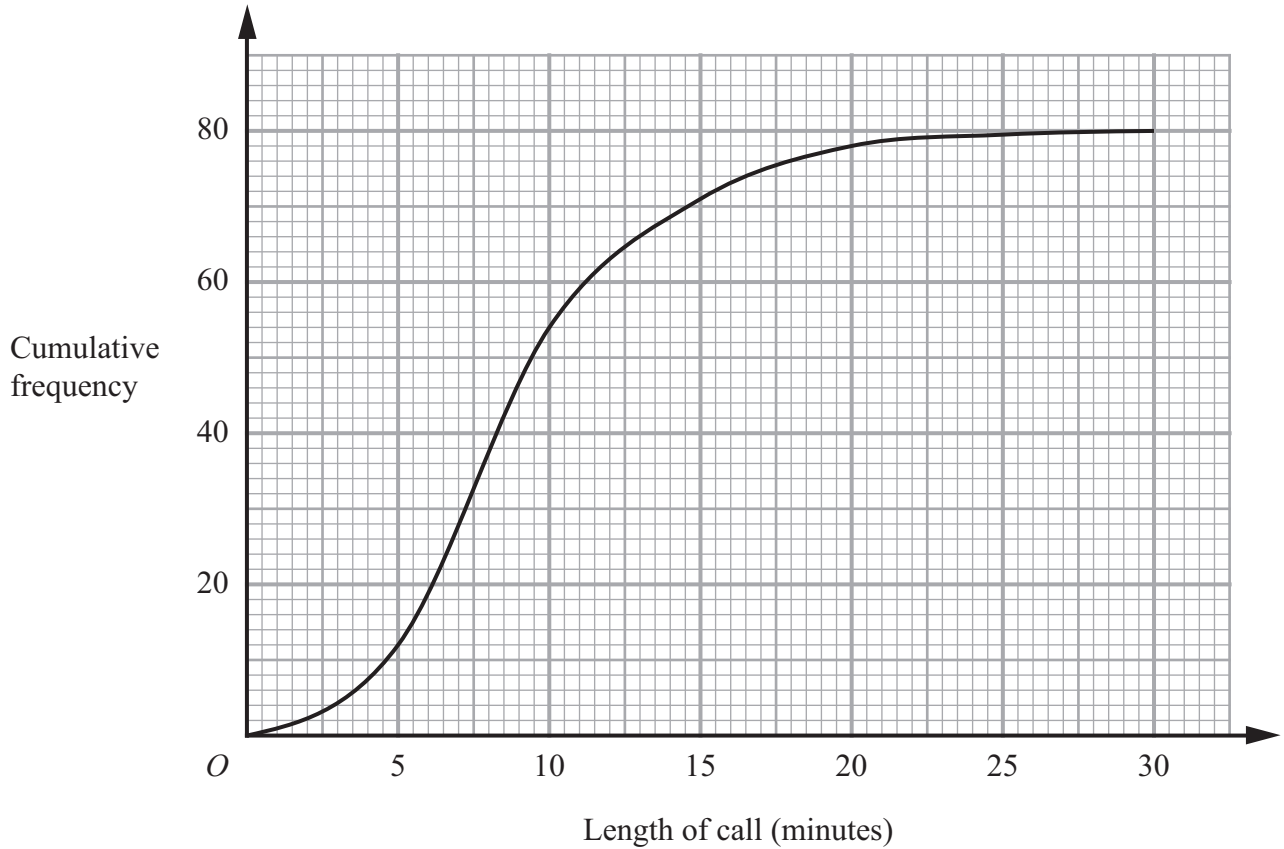
(c) Use the graph to find an estimate for the number of elephants with ages of more than 26 years.

.....

(2)

(Total for Question 2 is 5 marks)

3 The cumulative frequency graph gives information about the lengths, in minutes, of 80 telephone calls.



(a) Find an estimate for the number of calls which were longer than 15 minutes.

.....
(2)

(b) Find an estimate for the interquartile range of the lengths of the 80 calls.

..... minutes
(2)

(Total for Question 3 is 4 marks)

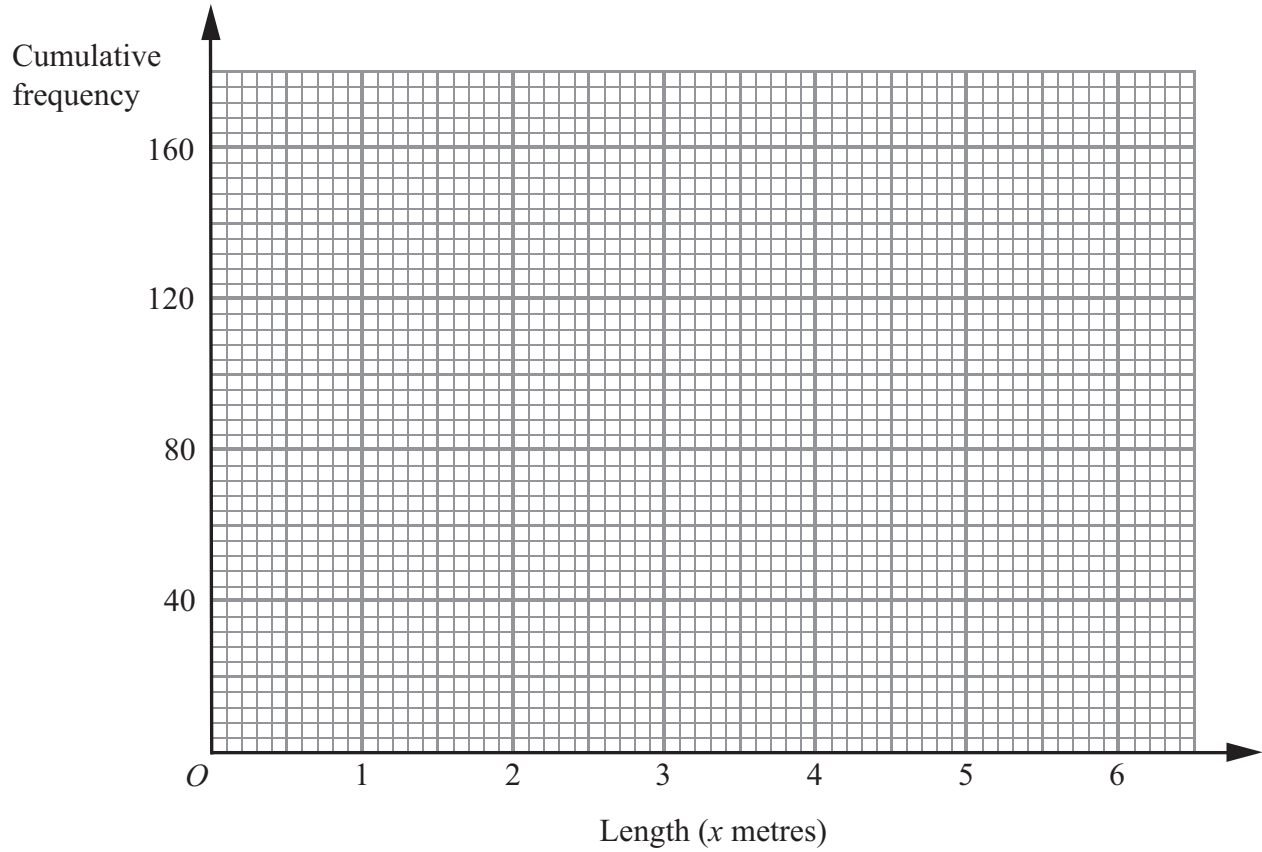
4 The grouped frequency table gives information about the lengths of 160 pythons.

Length (x metres)	Frequency
$0 < x \leq 1$	4
$1 < x \leq 2$	8
$2 < x \leq 3$	16
$3 < x \leq 4$	32
$4 < x \leq 5$	72
$5 < x \leq 6$	28

(a) Complete the cumulative frequency table.

Length (x metres)	Cumulative frequency
$0 < x \leq 1$	
$0 < x \leq 2$	
$0 < x \leq 3$	
$0 < x \leq 4$	
$0 < x \leq 5$	
$0 < x \leq 6$	

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



(2)

(c) Use your graph to find an estimate for the median length of the pythons.

..... metres
(2)

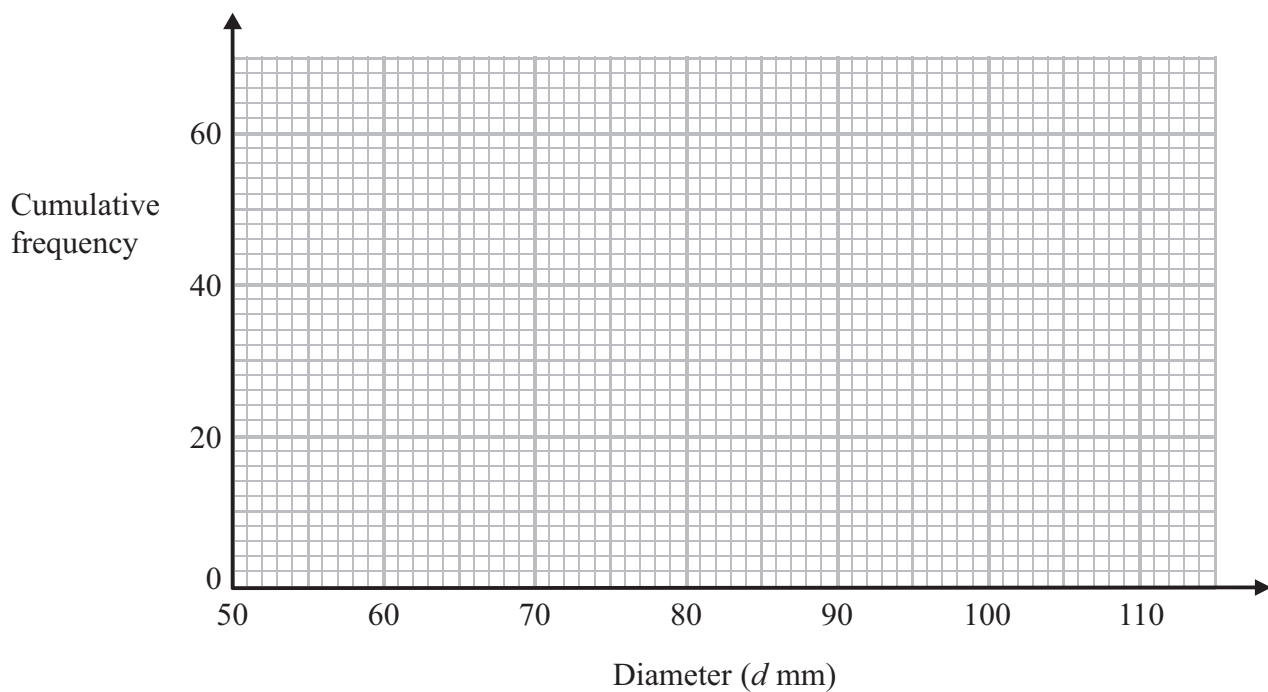
(Total for Question 4 is 5 marks)

5 The cumulative frequency table shows information about the diameters of 60 oranges.

Diameter (d mm)	Cumulative frequency
$50 < d \leq 60$	12
$50 < d \leq 70$	42
$50 < d \leq 80$	54
$50 < d \leq 90$	57
$50 < d \leq 100$	59
$50 < d \leq 110$	60

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

(2)



(b) Use your graph to find an estimate for the median diameter of the 60 oranges.

..... mm
(2)

(Total for Question 5 is 4 marks)

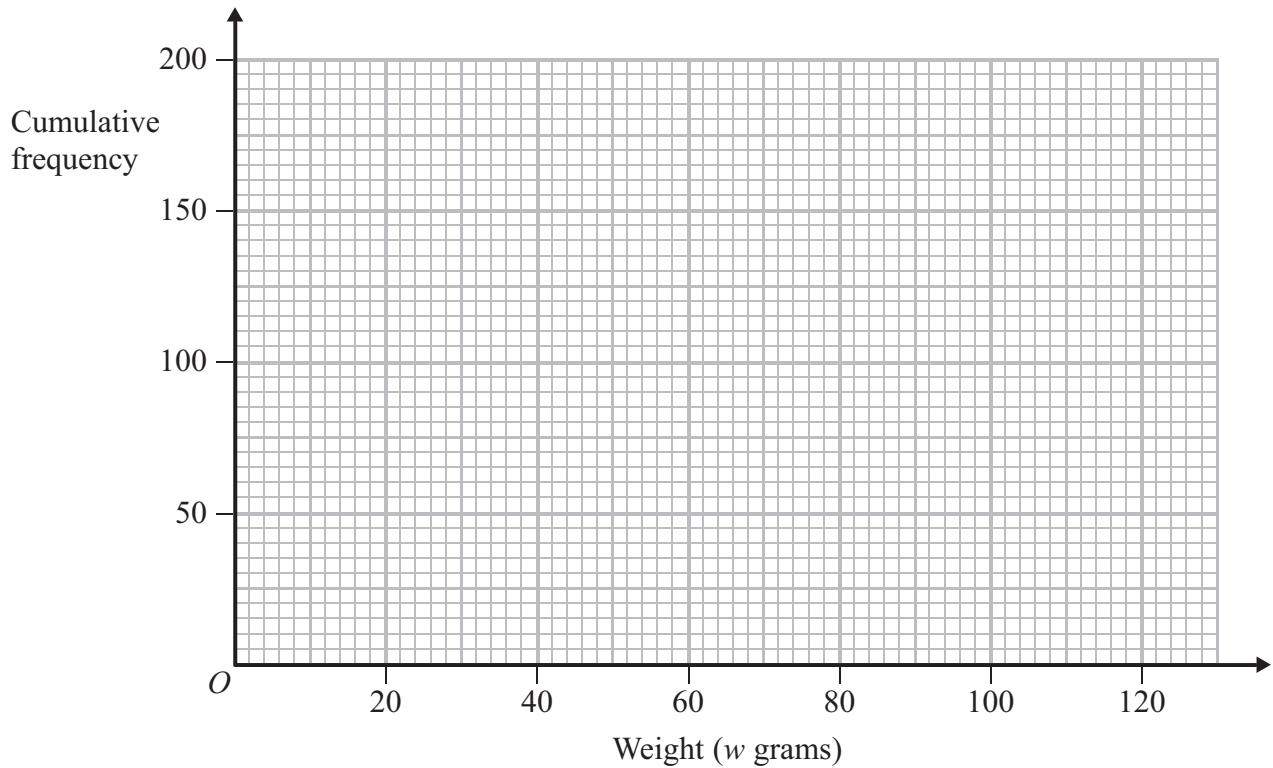
6 The grouped frequency table gives information about the weights of 180 airmail letters.

Weight (w grams)	Frequency
$0 < w \leq 20$	15
$20 < w \leq 40$	25
$40 < w \leq 60$	47
$60 < w \leq 80$	70
$80 < w \leq 100$	18
$100 < w \leq 120$	5

(a) Complete the cumulative frequency table.

Weight (w grams)	Cumulative frequency
$0 < w \leq 20$	
$0 < w \leq 40$	
$0 < w \leq 60$	
$0 < w \leq 80$	
$0 < w \leq 100$	
$0 < w \leq 120$	

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



(2)

(c) Find an estimate for the upper quartile of the weights of the 180 letters.

..... grams
(2)

(Total for Question 6 is 5 marks)

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- 7 A box contains 80 tea bags.
The table shows information about the weight of each tea bag.



Weight (w grams)	Number of tea bags
$2.8 < w \leq 2.9$	2
$2.9 < w \leq 3.0$	4
$3.0 < w \leq 3.1$	22
$3.1 < w \leq 3.2$	32
$3.2 < w \leq 3.3$	14
$3.3 < w \leq 3.4$	6

- (a) Work out the percentage of the 80 tea bags that weigh more than 3.1 grams.

..... %
(2)

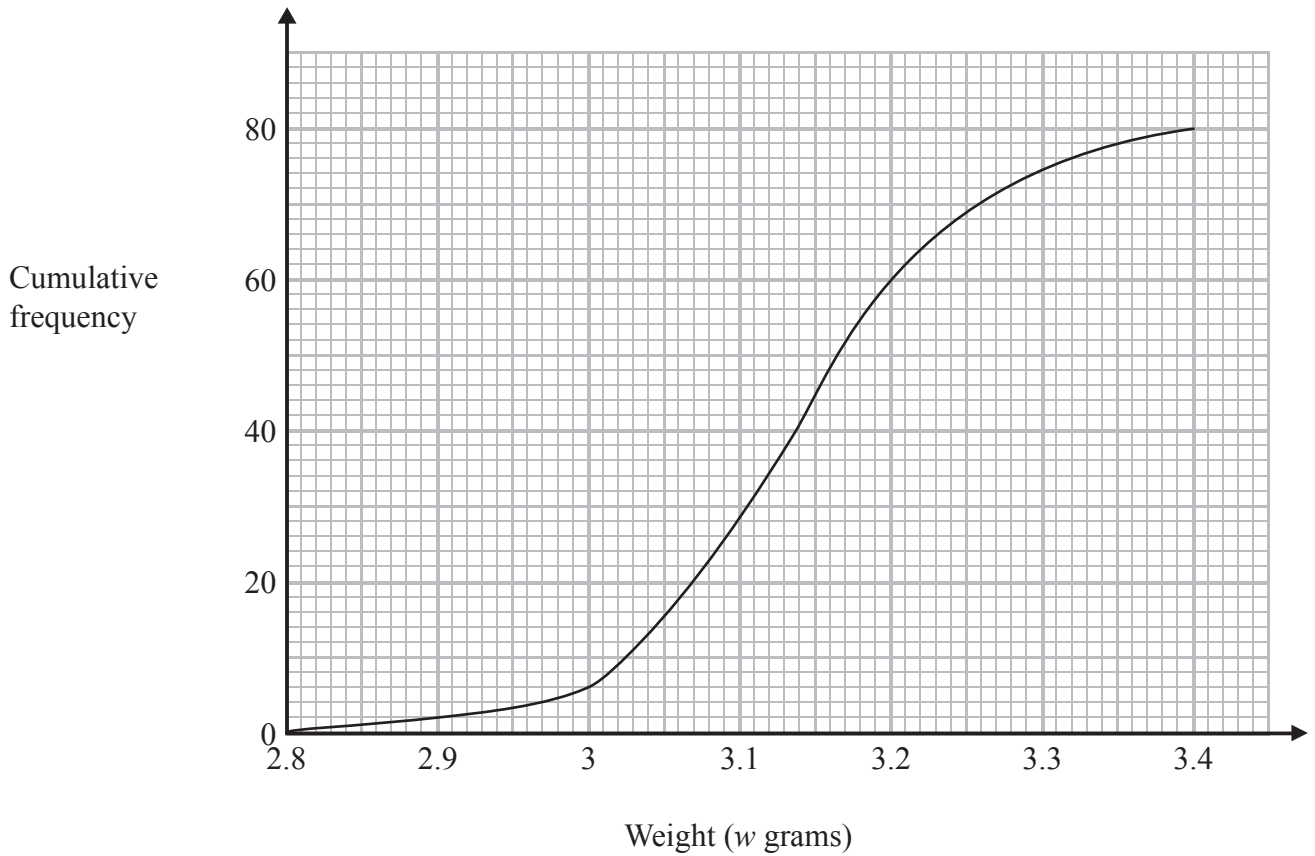
- (b) Work out an estimate for the total weight of the 80 tea bags.
Use halfway values of 2.85 grams, 2.95 grams, ...

..... grams
(3)

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Here is a cumulative frequency graph for the weights of the 80 tea bags.



(c) Use the graph to find an estimate for the number of tea bags which weighed more than 3.25 grams.

.....
(2)

(d) Use the graph to find an estimate for the interquartile range of the weights of the tea bags.

..... grams
(2)

(Total for Question 7 is 9 marks)

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- 8 The grouped frequency table gives information about the lengths of time 160 students exercised one day.

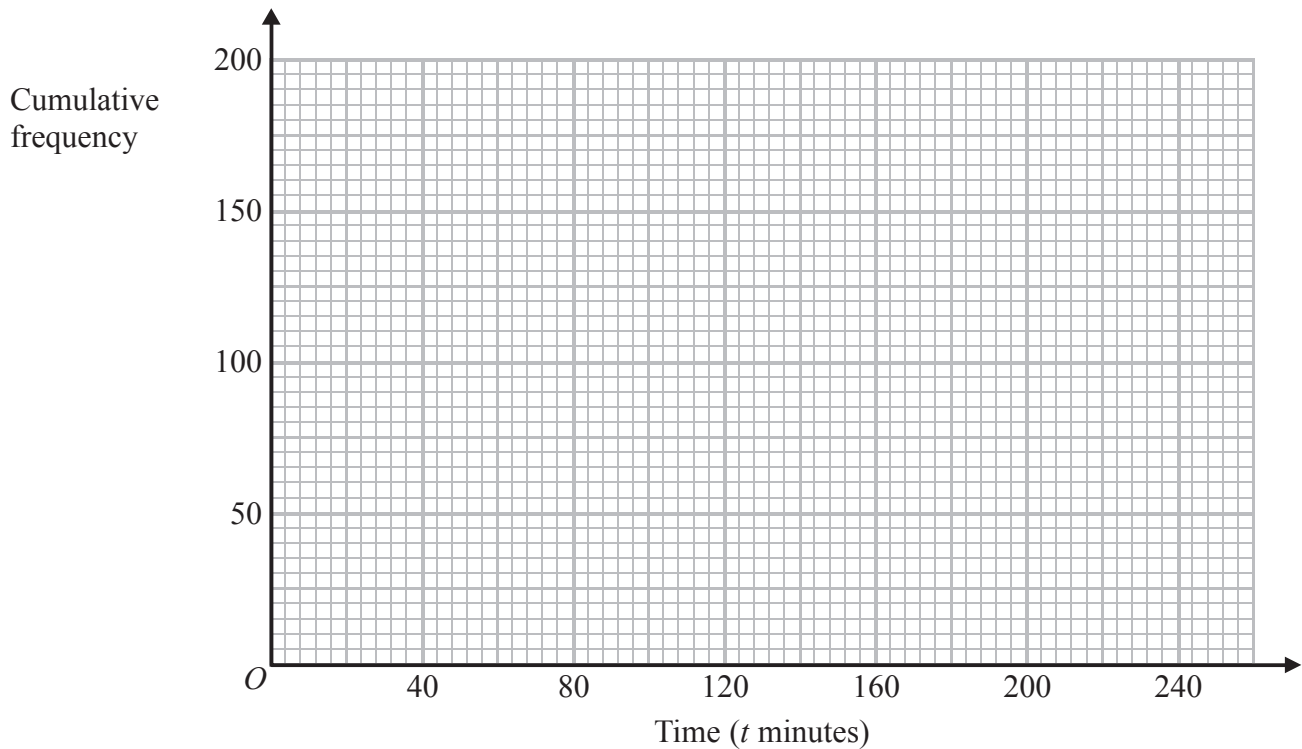
Time (t minutes)	Frequency
$0 < t \leq 40$	20
$40 < t \leq 80$	35
$80 < t \leq 120$	60
$120 < t \leq 160$	33
$160 < t \leq 200$	7
$200 < t \leq 240$	5

- (a) Complete the cumulative frequency table.

Time (t minutes)	Cumulative frequency
$0 < t \leq 40$	
$0 < t \leq 80$	
$0 < t \leq 120$	
$0 < t \leq 160$	
$0 < t \leq 200$	
$0 < t \leq 240$	

(1)

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



(2)

(c) Use your graph to find an estimate for the lower quartile of the lengths of time the 160 students exercised.

..... minutes
(2)

(Total for Question 8 is 5 marks)
