

Cumulative Frequency

30 marks

1. The table shows information about the heights of 40 bushes.

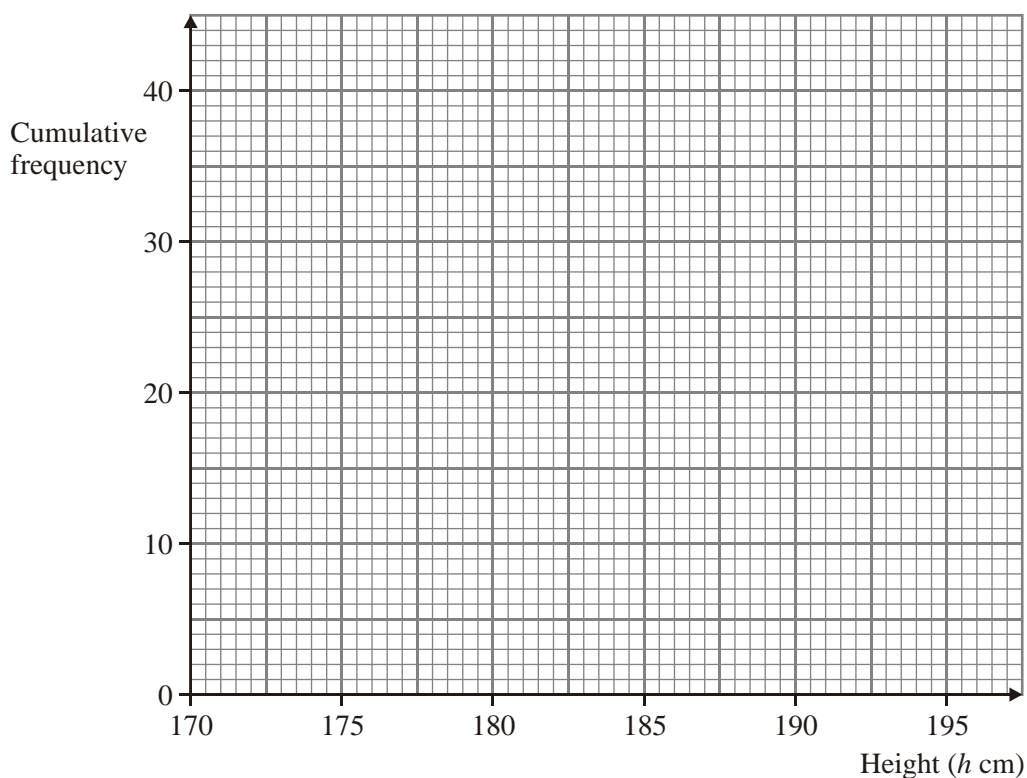
Height (h cm)	Frequency
$170 \leq h < 175$	5
$175 \leq h < 180$	18
$180 \leq h < 185$	12
$185 \leq h < 190$	4
$190 \leq h < 195$	1

(a) Complete the cumulative frequency table.

Height (h cm)	Cumulative Frequency
$170 \leq h < 175$	
$170 \leq h < 180$	
$170 \leq h < 185$	
$170 \leq h < 190$	
$170 \leq h < 195$	

(1)

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



(2)

(c) Use the graph to find an estimate for the median height of the bushes.

..... cm

(1)

(Total 4 marks)

2. A company tested 100 batteries.

The table shows information about the time in hours that the batteries lasted.

Time(t hours)	Frequency
$50 \leq t < 55$	12
$55 \leq t < 60$	21
$60 \leq t < 65$	36
$65 \leq t < 70$	23
$70 \leq t < 75$	8

(a) Complete the cumulative frequency table.

(1)

Time (t hours)	Cumulative frequency
$50 \leq t < 55$	12
$50 \leq t < 60$	
$50 \leq t < 65$	
$50 < t < 70$	
$50 \leq t < 75$	

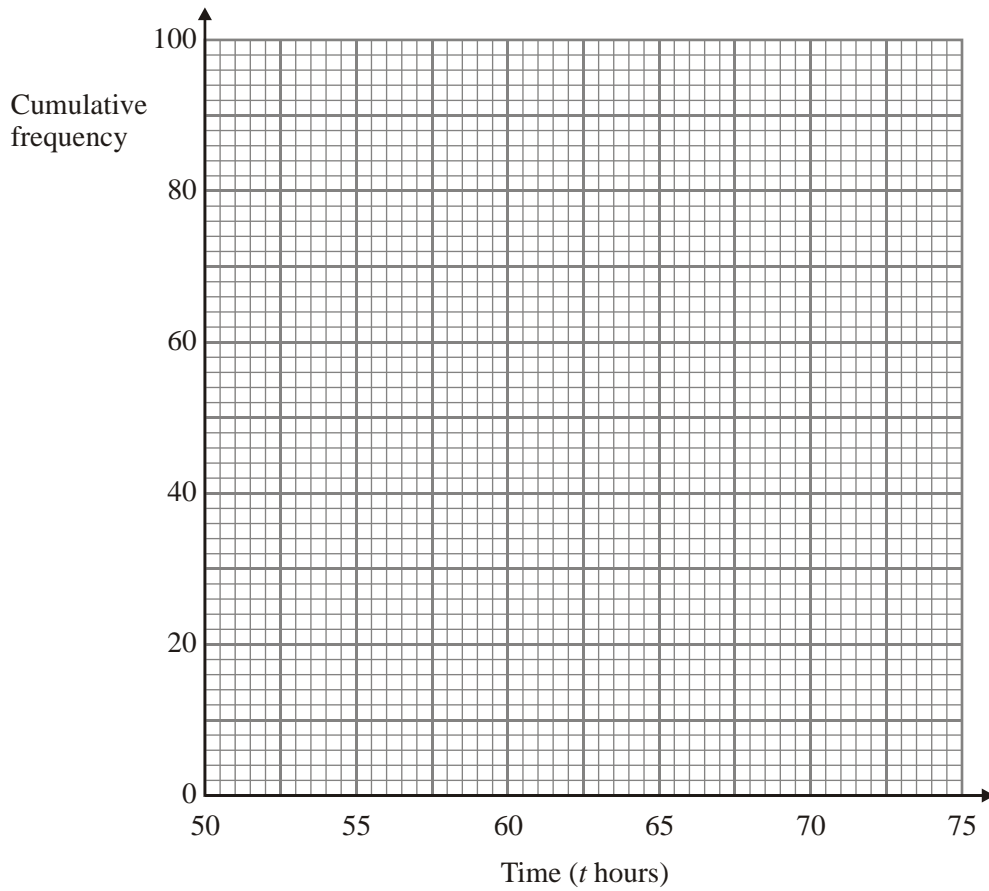
(b) On the grid, draw a cumulative frequency graph for your completed table.

(2)

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

.....hours

(1)



(Total 4 marks)

3. The cumulative frequency diagram below gives information about the prices of 120 houses.

(a) Find an estimate for the number of houses with prices less than £130 000.

.....

(1)

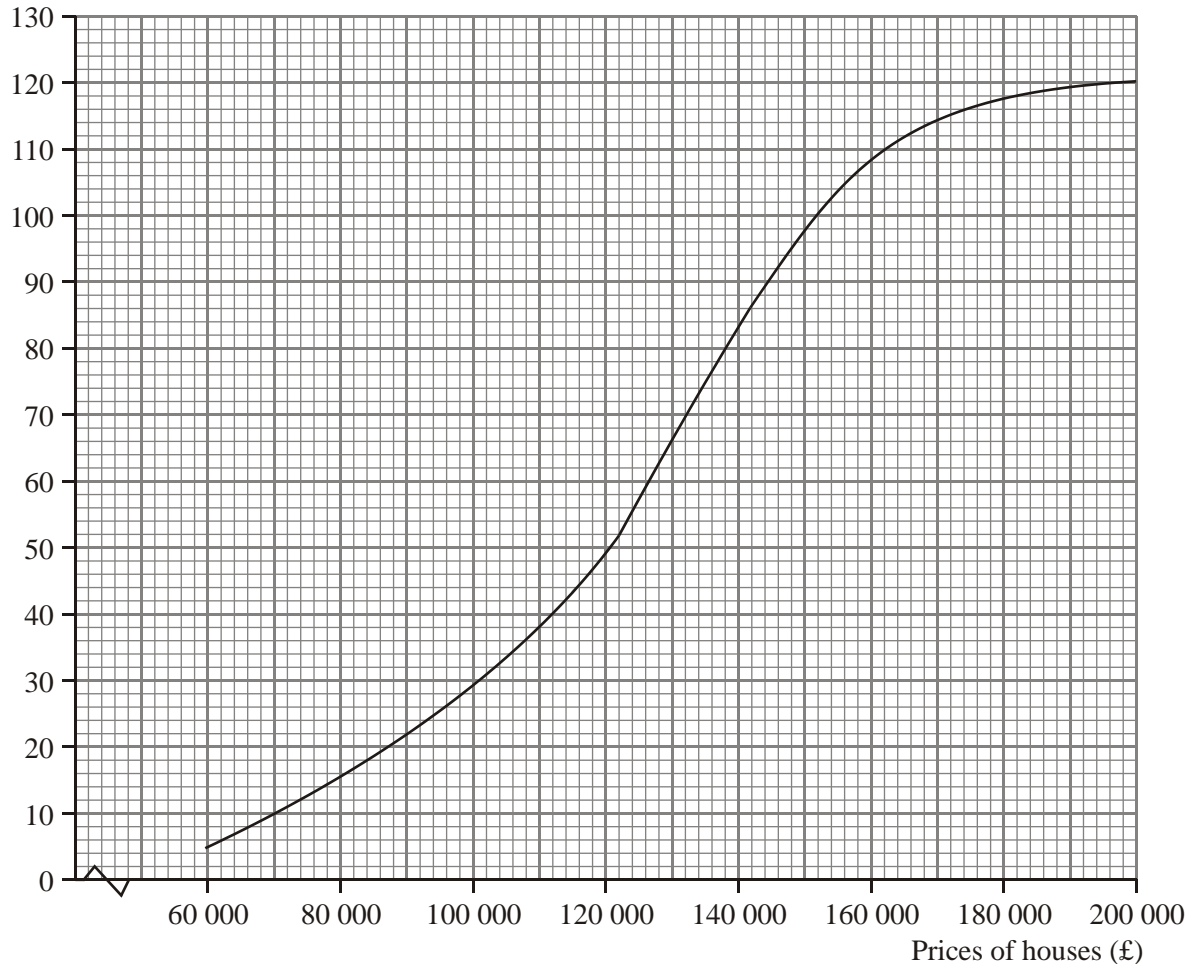
(b) Work out an estimate for the interquartile range of the prices of the 120 houses.

£

(2)

(Total 3 marks)

Cumulative frequency



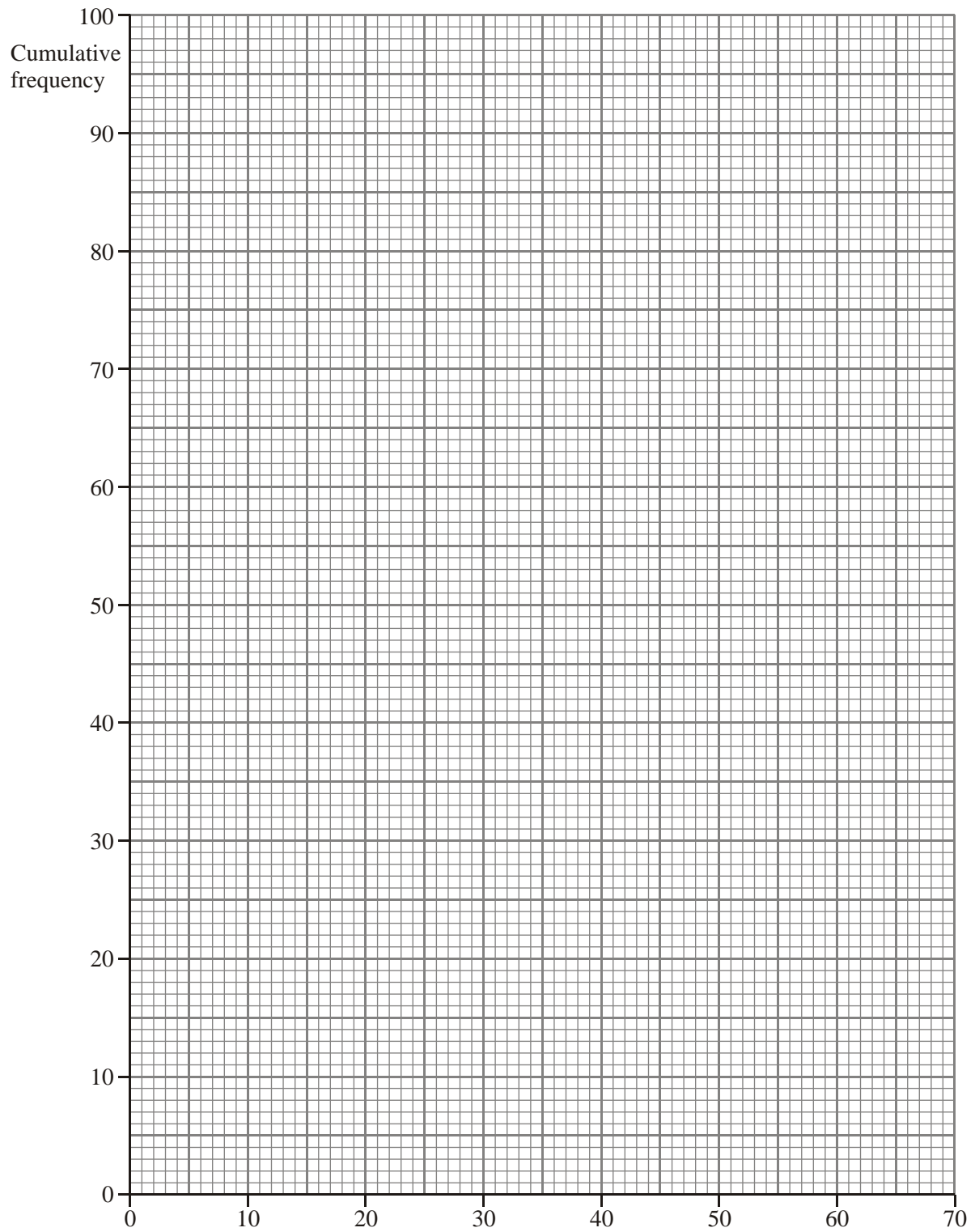
4. The cumulative frequency table gives information about the number of minutes 80 customers were in a supermarket.

Number of minutes (t) in a supermarket	Cumulative frequency
$0 < t \leq 10$	2
$0 < t \leq 20$	8
$0 < t \leq 30$	18
$0 < t \leq 40$	40
$0 < t \leq 50$	64
$0 < t \leq 60$	77
$0 < t \leq 70$	80

- (a) On the grid below, draw a cumulative frequency graph for the data in the table. (2)

- (b) Use your cumulative frequency graph to work out an estimate for the interquartile range of the number of minutes customers were in the supermarket.

..... minutes (2)



Number of minutes (t) in a supermarket

(Total 4 marks)

5. Daniel took a sample of 100 pebbles from Tawny Beach. He weighed each pebble and recorded its weight. He used the information to draw the cumulative frequency graph shown on the grid.

(a) Use the cumulative frequency graph to find an estimate for

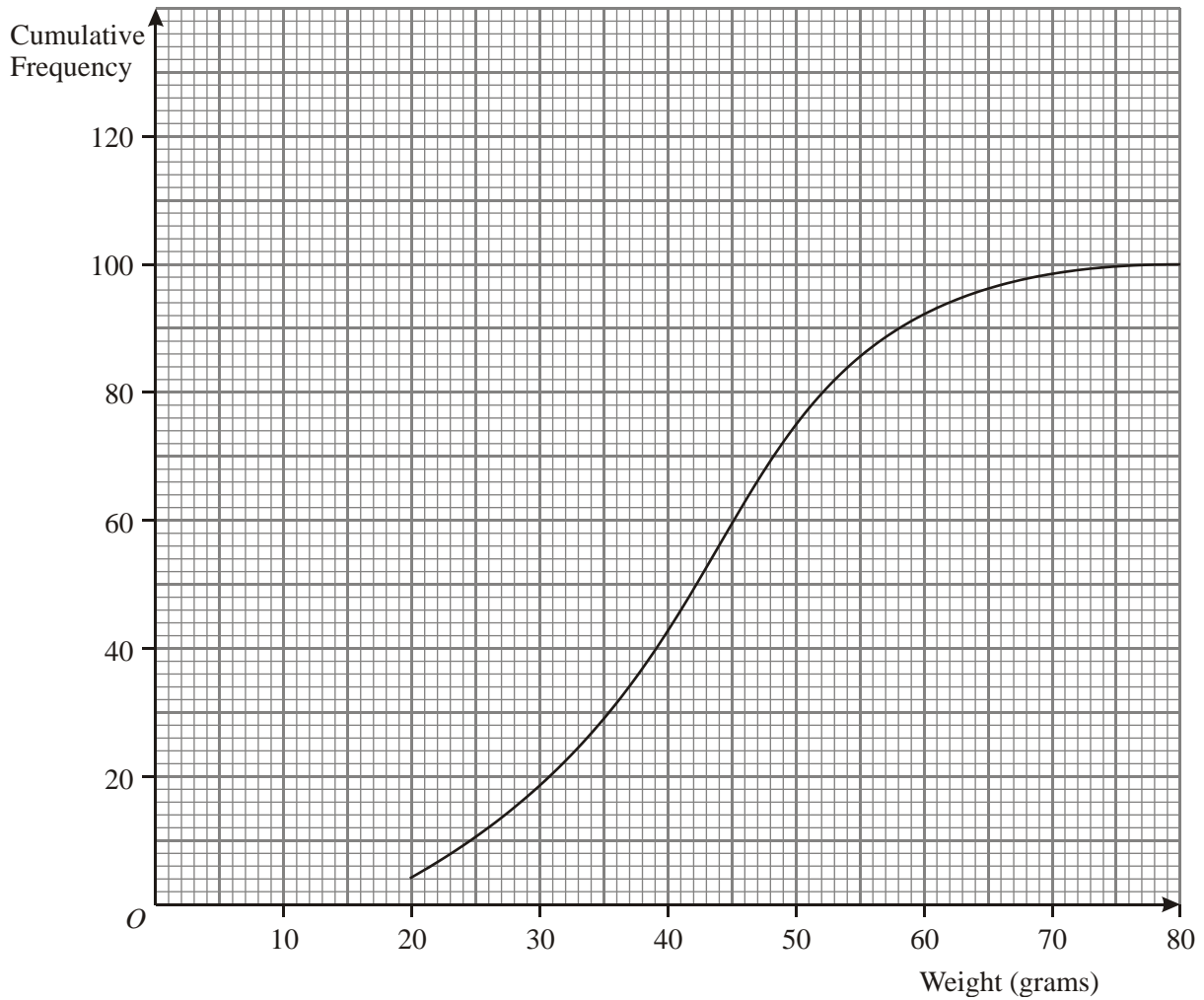
(i) the median weight of these pebbles,

..... grams

(ii) the number of pebbles with a weight more than 60 grams.

.....

(3)



Daniel also took a sample of 100 pebbles from Golden Beach.
The table shows the distribution of the weights of the pebbles in the sample from Golden Beach.

Weight (w grams)	Cumulative frequency
$0 < w \leq 20$	1
$0 < w \leq 30$	15
$0 < w \leq 40$	36
$0 < w \leq 50$	65
$0 < w \leq 60$	84
$0 < w \leq 70$	94
$0 < w \leq 80$	100

- (b) On the same grid, draw the cumulative frequency graph for the information shown in the table.

(2)

Daniel takes one pebble, at random, from his sample from Tawny Beach and one pebble, at random, from his sample from Golden Beach.

- (c) Work out the probability that the weight of the pebble from Tawny Beach is more than 60 grams **and** the weight of the pebble from Golden Beach is more than 60 grams.

.....

(4)

(Total 9 marks)

6. 90 students took an examination.
The grouped frequency table shows information about their results.

Mark (x)	Frequency
$0 < x \leq 10$	3
$10 < x \leq 20$	10
$20 < x \leq 30$	17
$30 < x \leq 40$	30
$40 < x \leq 50$	21
$50 < x \leq 60$	7
$60 < x \leq 70$	2

- (a) Complete the cumulative frequency table.

Mark (x)	Cumulative Frequency
$0 < x \leq 10$	3
$0 < x \leq 20$	
$0 < x \leq 30$	
$0 < x \leq 40$	
$0 < x \leq 50$	
$0 < x \leq 60$	
$0 < x \leq 70$	

(1)

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

(2)

- (c) Use your graph to find an estimate for the median mark.

.....

(1)

The pass mark for the examination was 28.

- (d) Use your graph to find an estimate for the number of students who passed the examination.

.....

(2)

(Total 6 marks)

Cumulative
frequency

