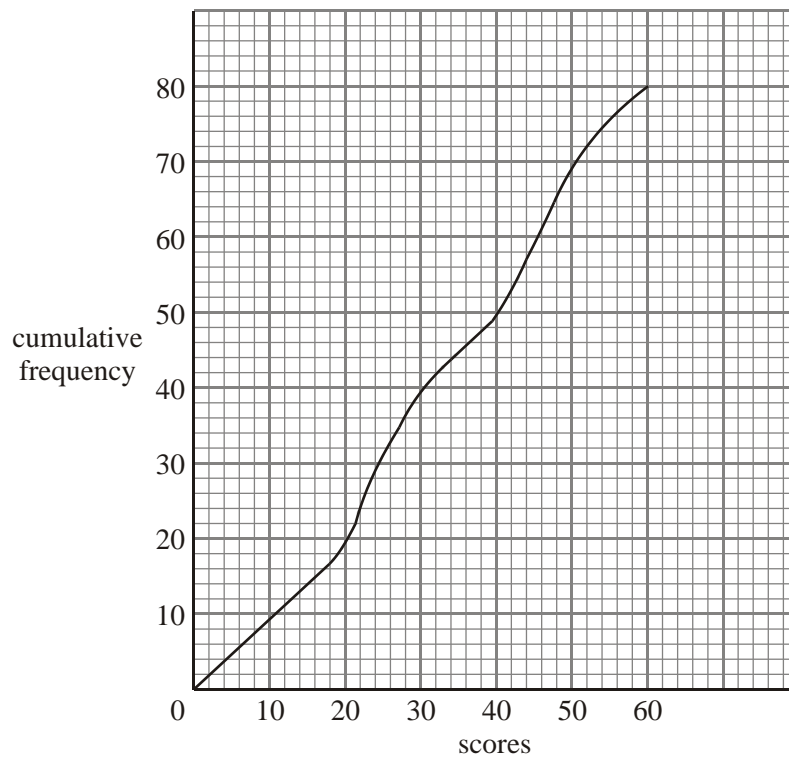


1. The cumulative frequency graph below shows the examination scores of 80 students.

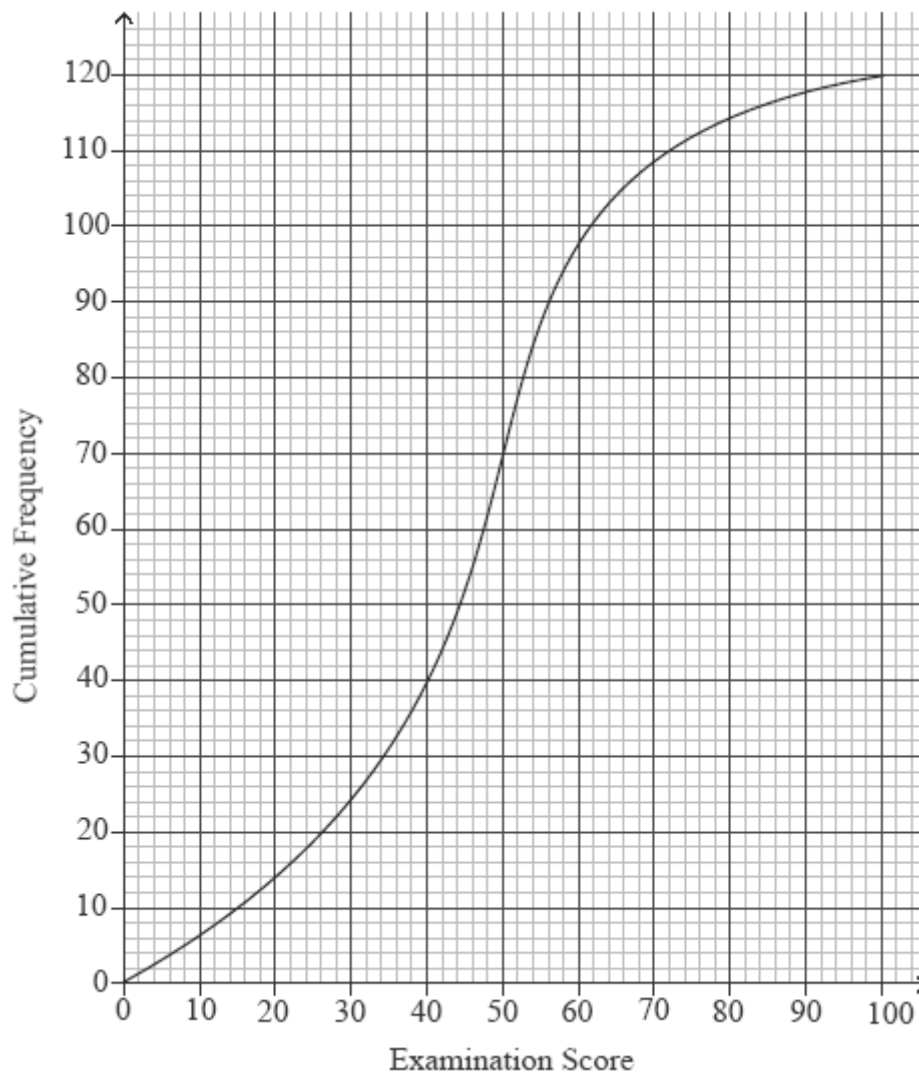


From the graph find

- (a) the median value;
- (b) the interquartile range;
- (c) the 35th percentile;
- (d) the percentage of students who scored 50 or above on this examination.

(Total 8 marks)

2. 120 Mathematics students in a school sat an examination. Their scores (given as a percentage) were summarized on a cumulative frequency diagram. This diagram is given below.



- (a) Complete the grouped frequency table for the students.

Examination Score x (%)	$0 \leq x \leq 20$	$20 < x \leq 40$	$40 < x \leq 60$	$60 < x \leq 80$	$80 < x \leq 100$
Frequency	14	26			

(3)

- (b) Write down the mid-interval value of the $40 < x \leq 60$ interval.

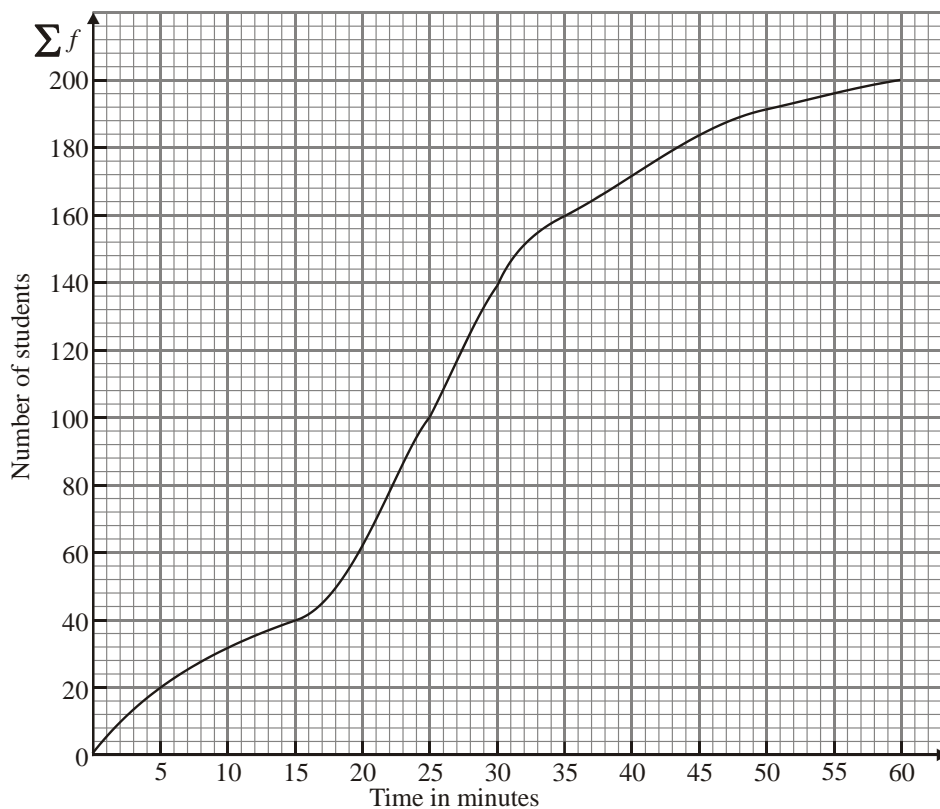
(1)

- (c) Calculate an estimate of the mean examination score of the students.

(2)

(Total 6 marks)

3. The cumulative frequency graph has been drawn from a frequency table showing the time it takes a number of students to complete a computer game.



- (a) From the graph find
- (i) the median time;
 - (ii) the interquartile range.

(5)

The graph has been drawn from the data given in the table below.

Time in minutes	Number of students
$0 < x \leq 5$	20
$5 < x \leq 15$	20
$15 < x \leq 20$	p
$20 < x \leq 25$	40
$25 < x \leq 35$	60
$35 < x \leq 50$	q
$50 < x \leq 60$	10

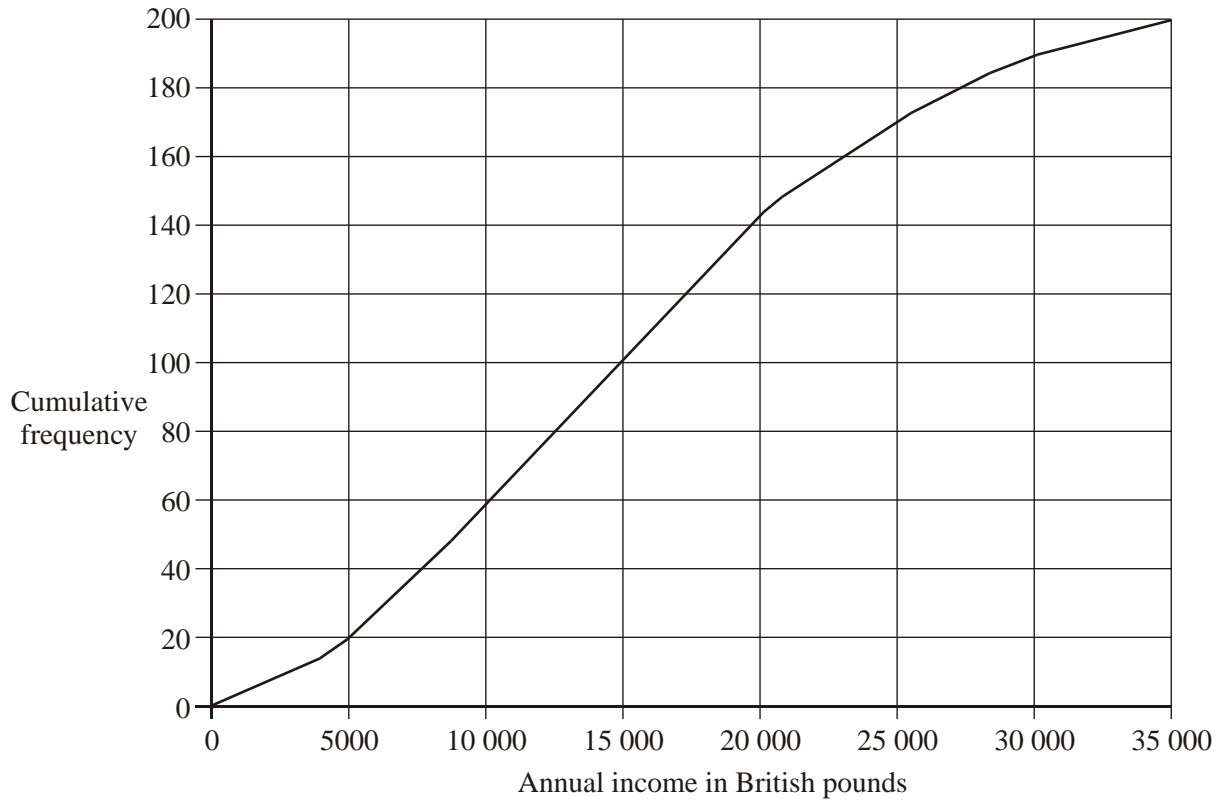
- (b) Using the graph, find the values of p and q .
- (c) Calculate an estimate of the mean time taken to finish the computer game.

(2)

(4)

(Total 11 marks)

4. The graph below shows the cumulative frequency for the yearly incomes of 200 people.



Use the graph to estimate

- (a) the number of people who earn less than 5000 British pounds per year;
- (b) the median salary of the group of 200 people;
- (c) the lowest income of the richest 20% of this group.

(Total 4 marks)

5. The table shows the number of children in 50 families.

Number of children	Frequency	Cumulative frequency
1	3	3
2	m	22
3	12	34
4	p	q
5	5	48
6	2	50
	T	

- (a) Write down the value of T .
- (b) Find the values of m , p and q .

(Total 4 marks)

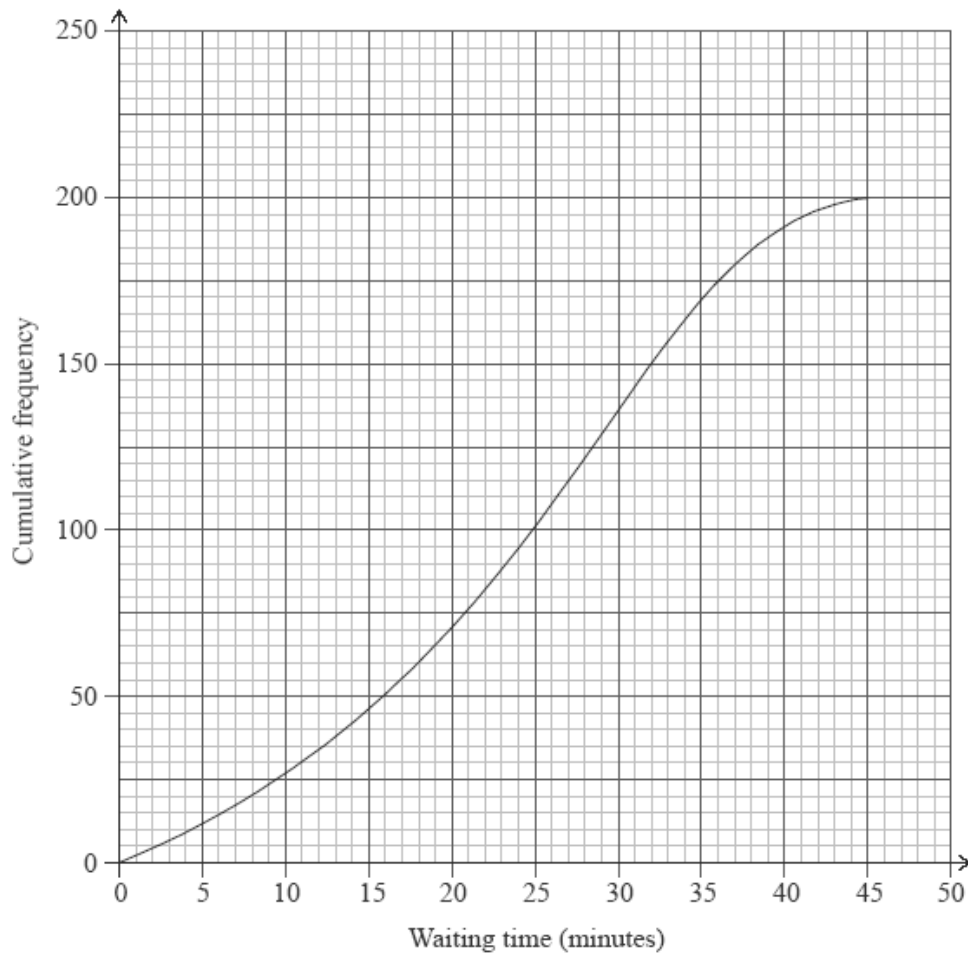
6. A marine biologist records as a frequency distribution the lengths (L), measured to the nearest centimetre, of 100 mackerel. The results are given in the table below.

Length of mackerel (L cm)	Number of mackerel
$27 < L \leq 29$	2
$29 < L \leq 31$	4
$31 < L \leq 33$	8
$33 < L \leq 35$	21
$35 < L \leq 37$	30
$37 < L \leq 39$	18
$39 < L \leq 41$	12
$41 < L \leq 43$	5
	100

- (a) Construct a cumulative frequency table for the data in the table. (2)
- (b) Draw a cumulative frequency curve. (3)
- Hint:** Plot your cumulative frequencies at the top of each interval.
- (c) Use the cumulative frequency curve to find an estimate, to the nearest cm for
- (i) the median length of mackerel; (2)
- (ii) the interquartile range of mackerel length. (2)

(Total 9 marks)

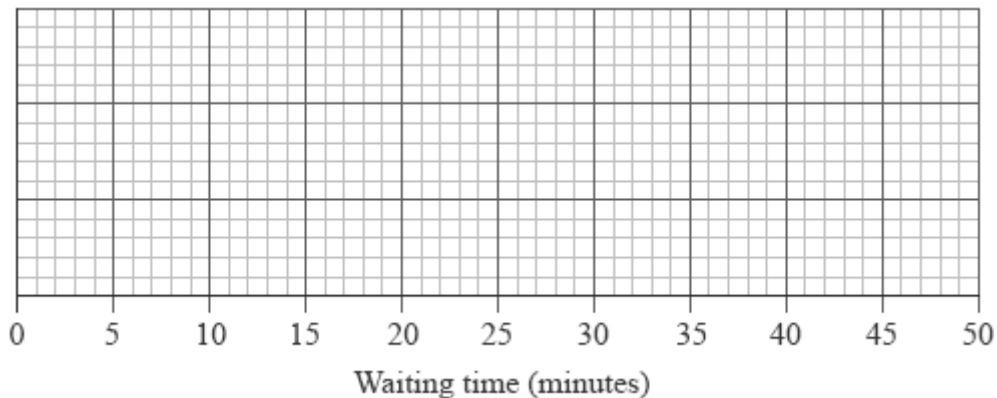
7. The cumulative frequency graph shows the amount of time in minutes, 200 students spend waiting for their train on a particular morning.



- (a) Write down the median waiting time. (1)
- (b) Find the interquartile range for the waiting time. (2)

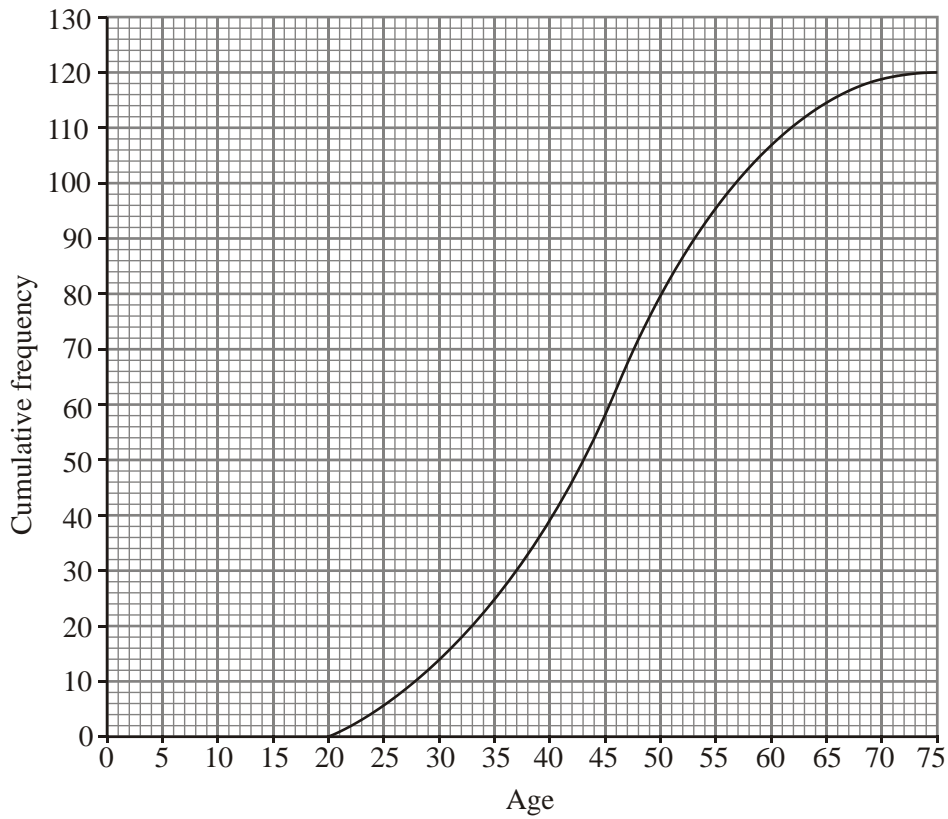
The minimum waiting time is zero and the maximum waiting time is 45 minutes.

- (c) Draw a box and whisker plot on the grid below to represent this information.

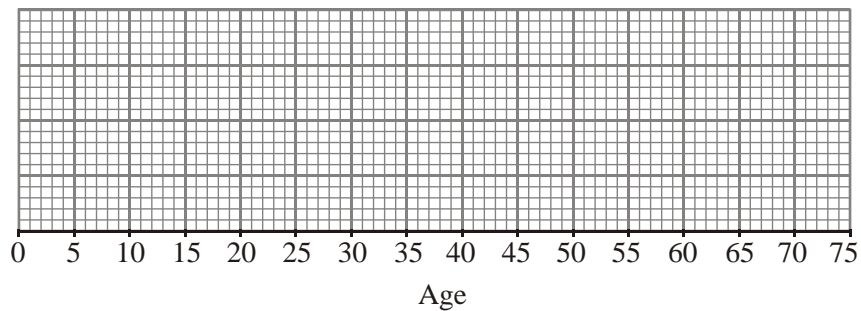


(3)
(Total 6 marks)

8. There are 120 teachers in a school. Their ages are represented by the cumulative frequency graph below.



- (a) Write down the median age. (1)
- (b) Find the interquartile range for the ages. (2)
- (c) Given that the youngest teacher is 21 years old and the oldest is 72 years old, represent the information on a box and whisker plot using the scale below.



(3)
(Total 6 marks)