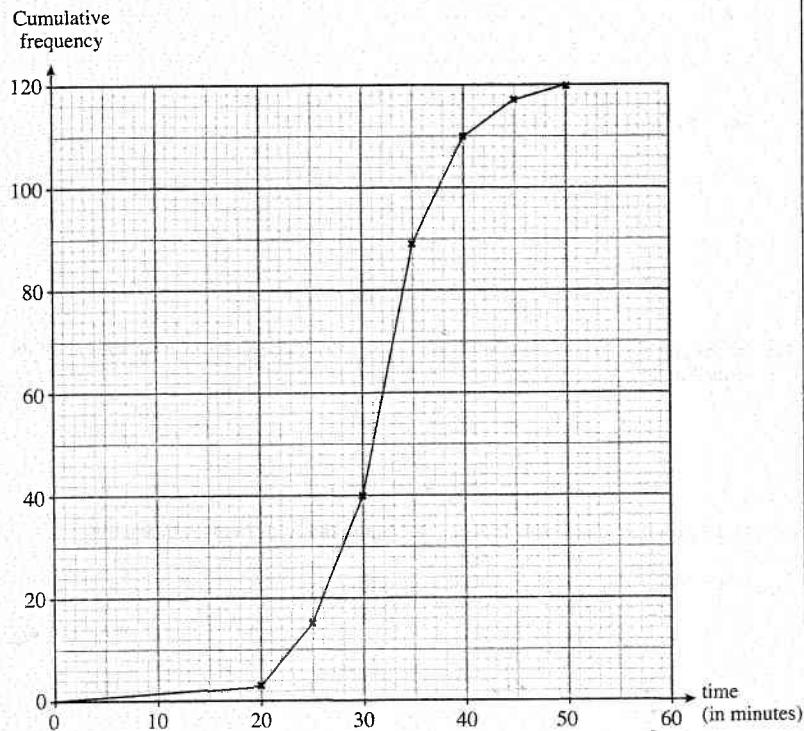


CUMULATIVE FREQUENCY GRAPH

1

The times taken, in minutes, by 120 people to complete a task were recorded. Below is a cumulative frequency polygon of the results.



Use the cumulative frequency polygon to find

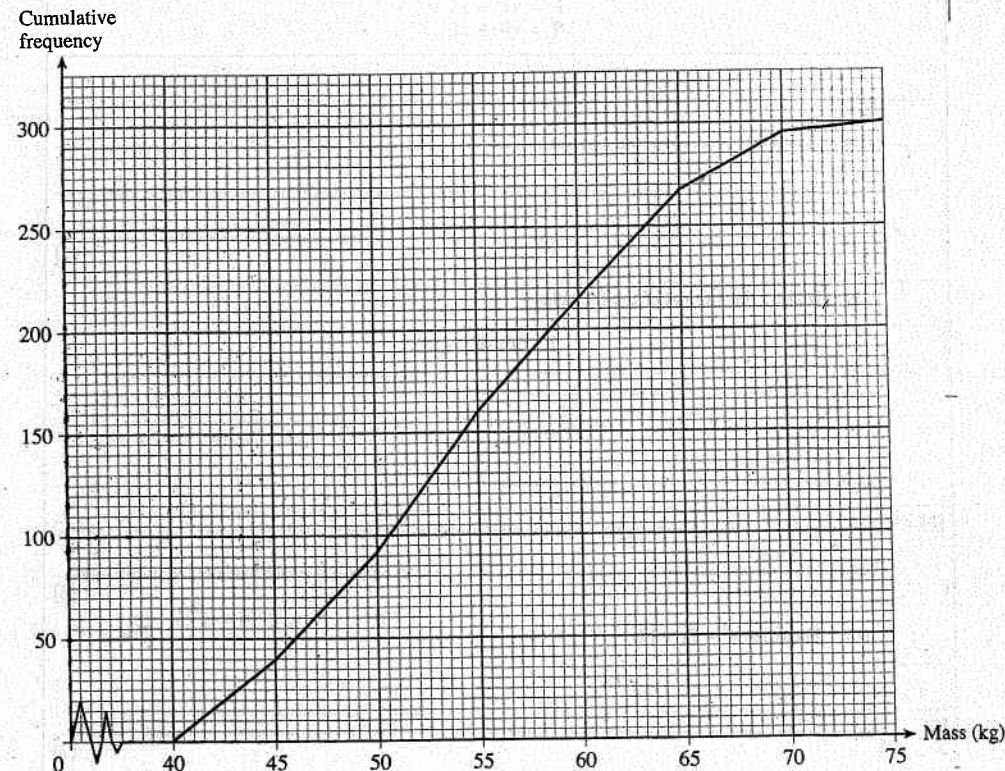
(a) the median time taken to complete the task,

(b) how many people took more than 38 minutes to complete the task.

Turn over.

2

The masses of 300 pupils were measured in kilograms. Below is a cumulative frequency polygon of the results.



Use the cumulative frequency polygon to find

(a) the inter-quartile range,

(b) how many pupils had a mass greater than 58 kg.

3

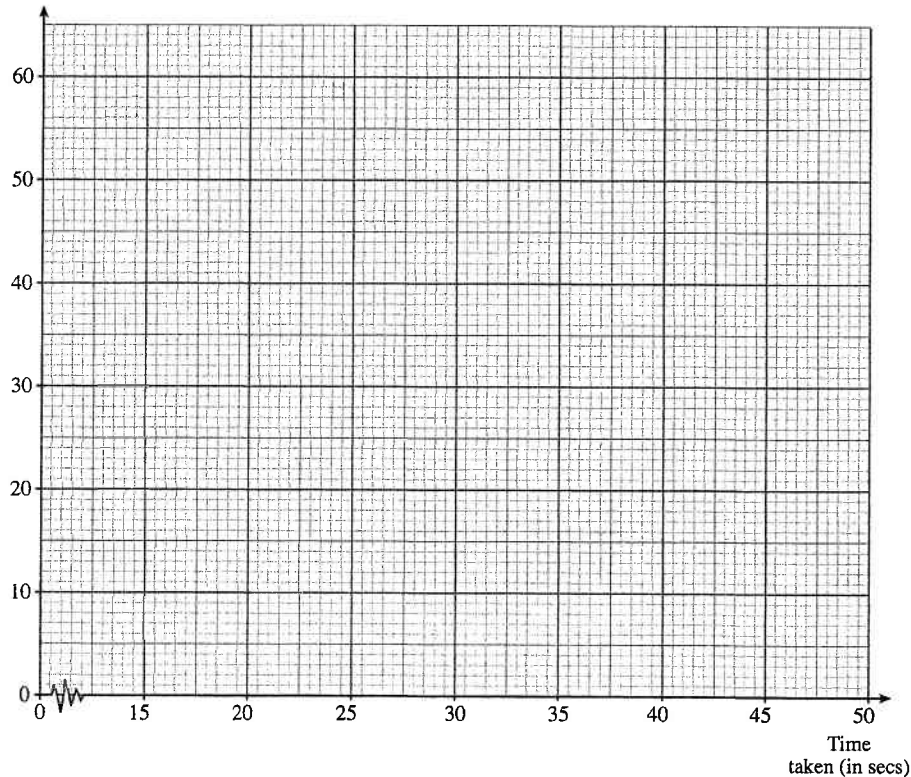
A task was given to 60 volunteers and the times they took, in seconds, to complete the task were recorded. The following is a cumulative frequency table of the results.

Time taken to complete the task (less than)	15	20	25	30	35	40	45	50
Cumulative frequency	0	3	9	18	37	52	57	60

(a) On the graph paper below, draw a cumulative frequency diagram to show this information.

[3]

Cumulative
frequency



(b) Use your cumulative frequency diagram to find the interquartile range.

[2]

Turn over.

4

The heart rate of 80 members during exercise at a gym was recorded. The following table shows a grouped frequency distribution of the results.

Heart rate, r (beats per minute)	$80 \leq r < 90$	$90 \leq r < 100$	$100 \leq r < 110$	$110 \leq r < 120$	$120 \leq r < 130$	$130 \leq r < 140$
Number of members	3	12	21	36	7	1

(a) Complete the following cumulative frequency table.

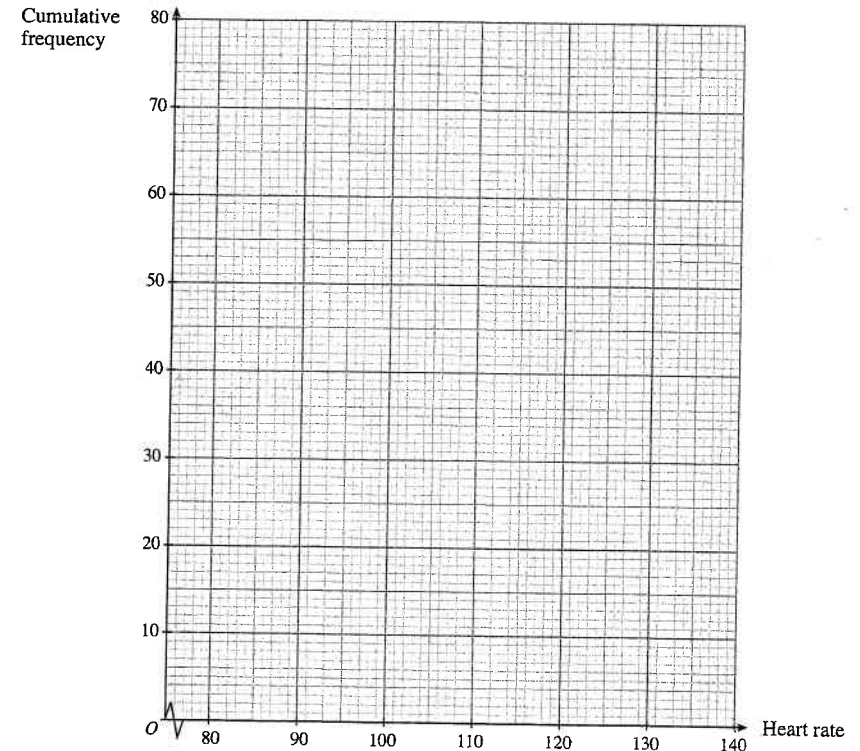
Heart rate (less than)	90	100	110	120	130	140
Cumulative frequency	3	15				

[1]

(b) On the graph paper below, draw a cumulative frequency diagram to show this information.

[3]

Cumulative
frequency



(c) Use your cumulative frequency diagram to find the interquartile range.

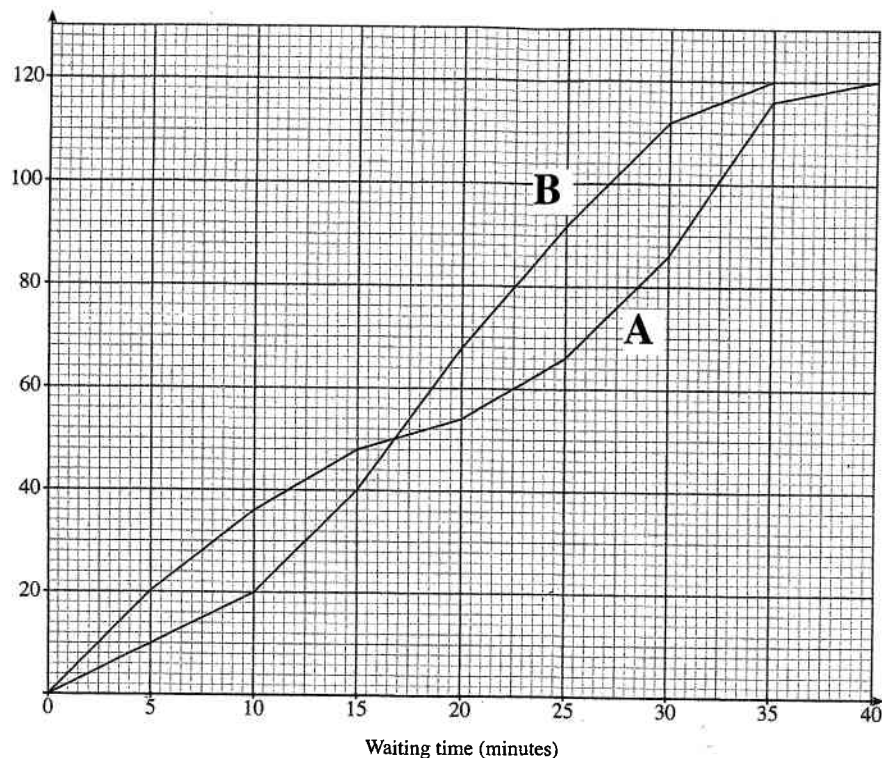
[2]

Turn over.

5

Two clinics, labelled A and B, record the waiting time, in minutes, before treatment for each of their 120 patients. Cumulative frequency polygons for waiting times at clinics A and B are shown below.

Cumulative frequency



Use the cumulative frequency polygons to answer the following questions.

(a) Find which clinic has the shorter median waiting time and by how many minutes.

[2]

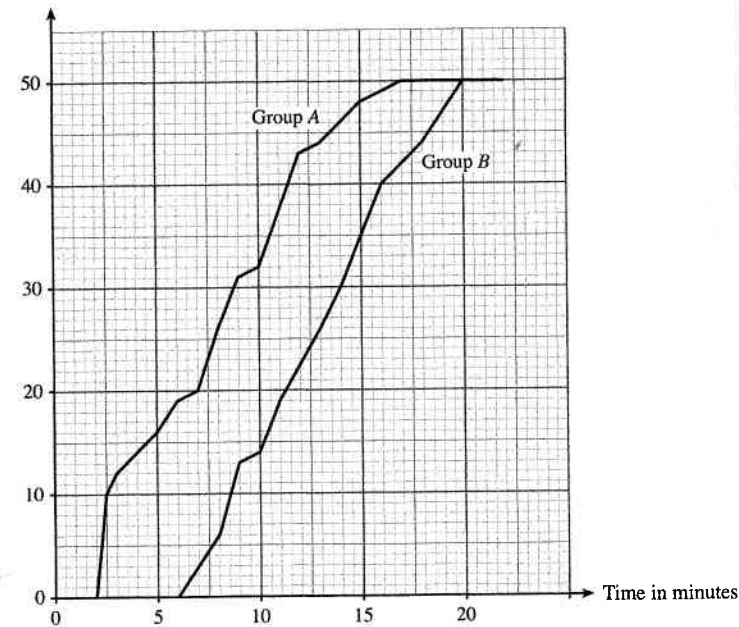
(b) At which clinic are you more likely to have to wait longer than 30 minutes before you are treated? Explain clearly how you came to your decision.

[2]

6

The cumulative frequency diagram shows the length of time taken by two different groups of 50 students, A and B to complete a task successfully.

Cumulative frequency



(a) State which group of students, A or B, was quicker at successfully completing the task. Give a reason for your decision.

[2]

(b) State the median of the times taken for successfully completing the task for Group A.

[1]