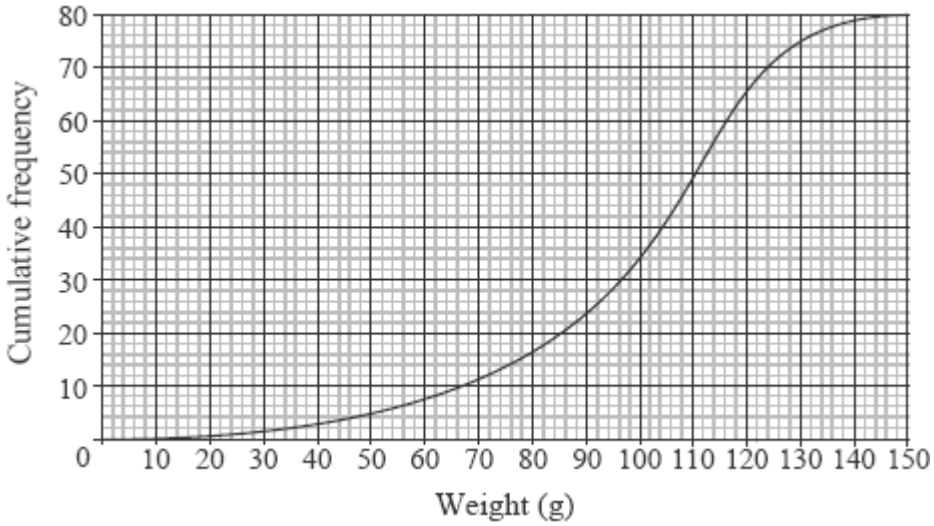
1. The cumulative frequency graph below represents the weight in grams of 80 apples picked from a particular tree.



(a) Estimate the

(i) median weight of the apples;

(ii) 30^{th} percentile of the weight of the apples.

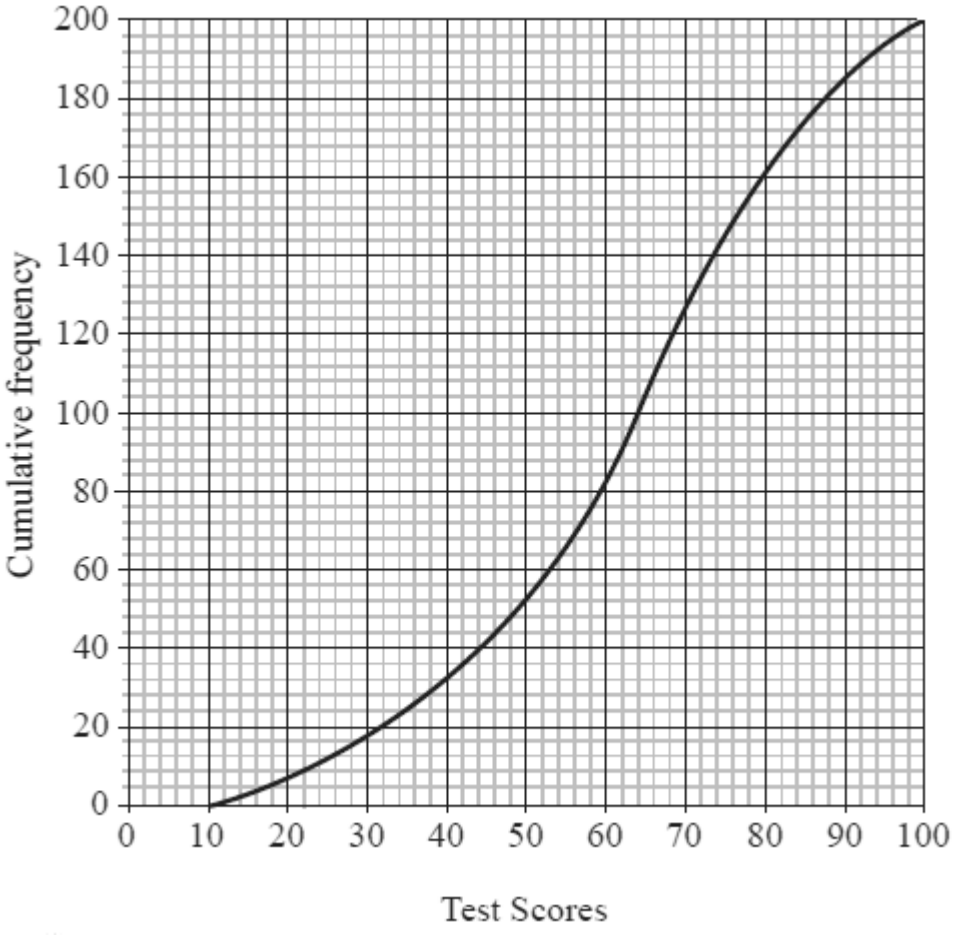
(2)

(b) Estimate the number of apples that weigh more than 110 grams.

(2)

(Total 4 marks)

2. The test scores of a group of students are shown on the cumulative frequency graph below.



(a) Estimate the median test score.

(1)

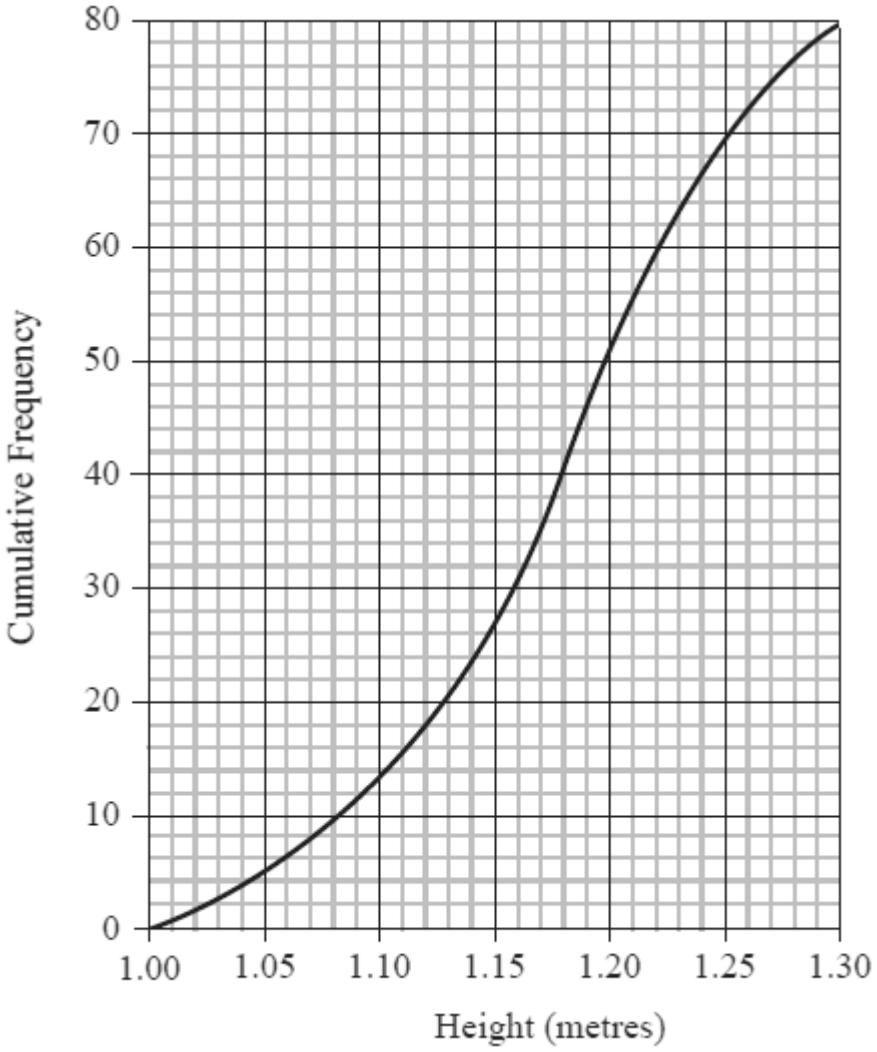
(b) The top 10 % of students receive a grade A and the next best 20 % of students receive a grade B. Estimate

(i) the minimum score required to obtain a grade A;

(ii) the minimum score required to obtain a grade B.

(4)
(Total 5 marks)

3. The heights in metres of a random sample of 80 boys in a certain age group were measured and the following cumulative frequency graph obtained.



(a) (i) Estimate the median of these data.

(ii) Estimate the interquartile range for these data.

(3)

(b) (i) Produce a frequency table for these data, using a class width of 0.05 metres.

(ii) Calculate unbiased estimates of the mean and variance of the heights of the population of boys in this age group.

(5)

(c) A boy is selected at random from these 80 boys.

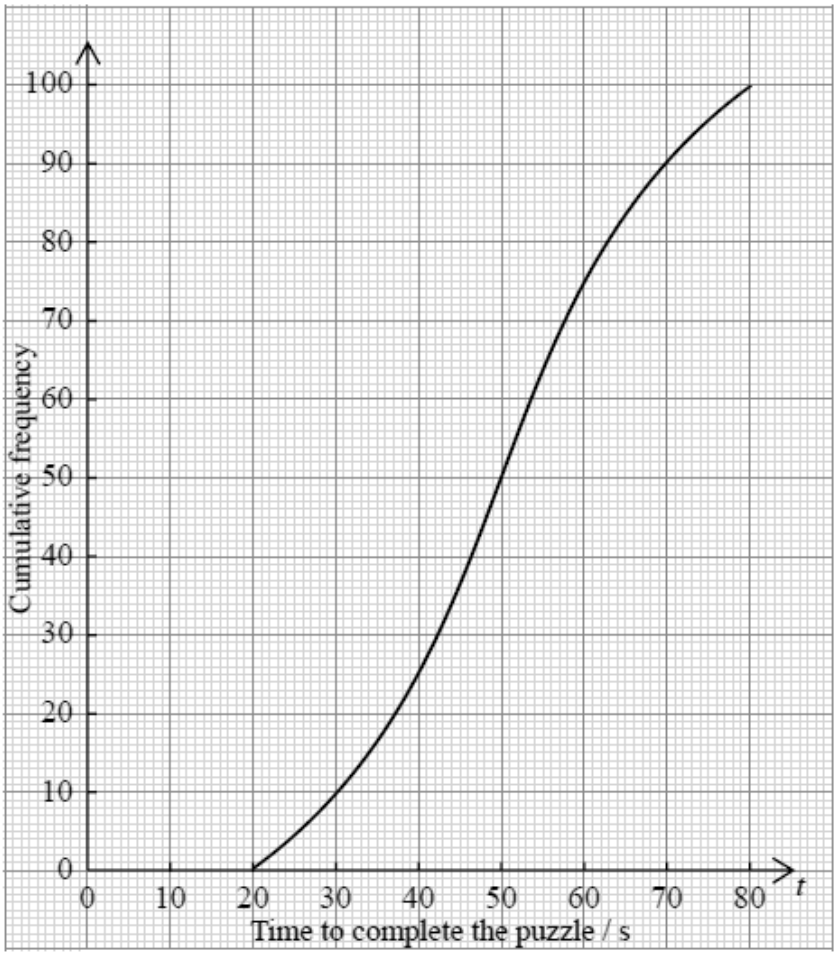
(i) Find the probability that his height is less than or equal to 1.15 metres.

(ii) Given that his height is less than or equal to 1.15 metres, find the probability that his height is less than or equal to 1.12 metres.

(5)

(Total 13 marks)

4. A recruitment company tests the aptitude of 100 applicants applying for jobs in engineering. Each applicant does a puzzle and the time taken, t, is recorded.
The cumulative frequency curve for these data is shown below.



Using the cumulative frequency curve,

(a) write down the value of the median;

(1)

(b) determine the interquartile range;

(2)

(c) complete the frequency table below.

Time to complete puzzle in seconds	**Number of applicants**
$20 < t \leq 30$	
$30 < t \leq 35$	
$35 < t \leq 40$	
$40 < t \leq 45$	
$45 < t \leq 50$	
$50 < t \leq 60$	
$60 < t \leq 80$	

(2)
(Total 5 marks)