3. In her first five attempts at long jump, Greta's mean jump length was 4.80 m and the standard deviation of the lengths was 0.2 m. After her sixth jump the mean increased to 4.85 m. Find the standard deviation of all six jumps.

4. The cumulative frequency diagram shows the test scores of a group of students.

Test score, S	Frequency
$0 \le S \le 20$	7
$20 < S \le 35$	q
$35 < S \le 50$	r
$50 < S \le p$	17
$p < S \le 75$	8

(a) Estimate the median and the interquartile range of the scores.

(b) Find the values of p, q and r to complete the frequency table.

(c) Hence estimate the mean and standard deviation of the scores.

5. The results of a group of students on a mathematics test are summarised below.

Score	20–30	31–40	41–55	56–70	71–82	83–100
Frequency	6	13	k	25	11	9

(a) Given that the mean score is 59 (rounded to the nearest integer), find the value of k.

(b) Find the standard deviation of the results.

5 The stem and leaf diagram below shows the weights of a sample of eggs. Draw a box and whisker plot of the data.

4	4	4	6	7	8	9	
5	0	1	2	4	4	7	8
6	1	1	3	6	8		
7	0	0	2	2	3	4	

$n = 24$ key: 6 | 1 means 61 grams

12 A teacher drives to school. She records the time taken on each of 20 randomly chosen days. She finds that,

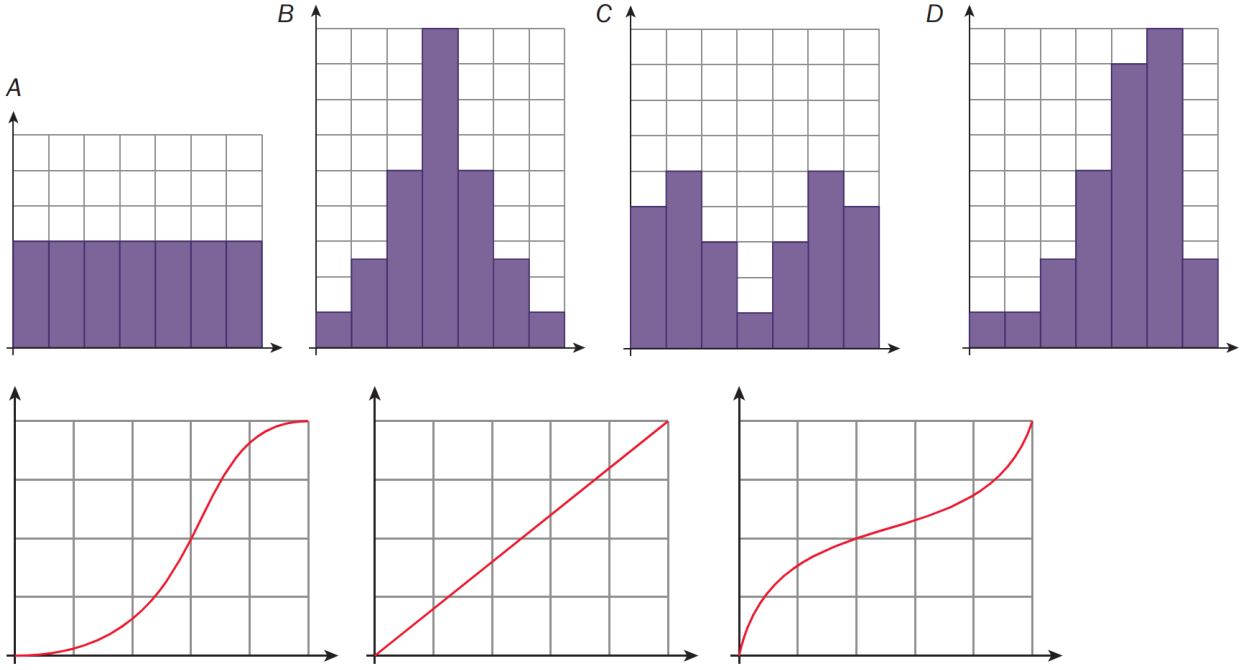
$$\sum_{i=1}^{20} x_i = 626 \text{ and } \sum_{i=1}^{20} x_i^2 = 1970.8$$

where x_i denotes the time, in minutes, taken on the ith day.
Calculate an unbiased estimate of

a the mean time taken to drive to school

b the variance of the time taken to drive to school. [IB May 03 P1 Q19]

5 These histograms show four data sets A, B, C and D with the same number of values and the same range.



a Decide which data set A, B, C, or D goes with each of these cumulative frequency diagrams.

b Sketch a cumulative frequency diagram for the remaining data set.

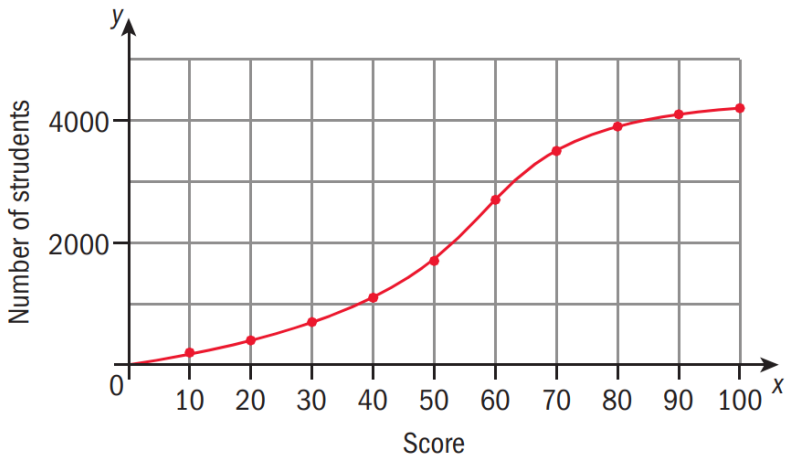
4 A data set contains these values

2, 3, 3, 3, 6, 6, 7

a Write down the values of the mode and median.

b Suppose that a new data value a is added to the set. Find the value of a that would make the mean and the median of the new data set the same. Hence, state the effect of this new data value on the mode of the set.

5 An IB exam marked out of 120 is taken by 4200 students. Here is a cumulative frequency graph of the marks.



a Estimate the number of students who scored 40 marks or fewer on the test.

b The middle 50% of test results lie between marks a and b, where $a < b$. Estimate the values of a and b.

c If 80 marks is the minimum score to be awarded a grade 7, estimate the percentage of students in the group who achieved this grade.

4 Two dice are rolled four times and the sums of their scores are: 2, 3, 6 and 9. Then the dice are rolled twice more. If the new mean score sum was 6 and the standard deviation of the score sum was $\sqrt{10}$ find the values of the two last score sums. Hence find the range and interquartile range of the distribution of the score sums.