Stats 2 calculator

1) The following frequency distribution of marks has mean 4.5.

Mark	1	2	3	4	5	6	7
Frequency	2	4	6	9	x	9	4

(a) Find the value of x. *[4 marks]*

(b) Write down the standard deviation. *[2 marks]*

2) The following table gives the examination grades for 120 students.

Grade	**Number of students**	**Cumulative frequency**
1	9	9
2	25	34
3	35	p
4	q	109
5	11	120

(a) Find the value of

(i) p;

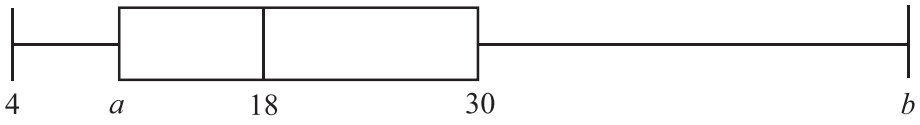
(ii) q. *[4 marks]*

(b) Find the mean grade. *[2 marks]*

(c) Write down the standard deviation. *[1 mark]*

3) *[Maximum mark: 5]*

The following diagram is a box and whisker plot for a set of data.



The interquartile range is 20 and the range is 40.

(a) Write down the median value. *[1 mark]*

(b) Find the value of

(i) a;

(ii) b. *[4 marks]*

4) *[Maximum mark: 7]*

In a school with 125 girls, each student is tested to see how many sit-up exercises (sit-ups) she can do in one minute. The results are given in the table below.

Number of sit-ups	**Number of students**	**Cumulative number of students**
15	11	11
16	21	32
17	33	p
18	q	99
19	18	117
20	8	125

(a) (i) Write down the value of p.

(ii) Find the value of q. *[3 marks]*

(b) Find the median number of sit-ups. *[2 marks]*

(c) Find the mean number of sit-ups. *[2 marks]*

5) *[Maximum mark: 6]*

A standard die is rolled 36 times. The results are shown in the following table.

Score	1	2	3	4	5	6
Frequency	3	5	4	6	10	8

(a) Write down the standard deviation. *[2 marks]*

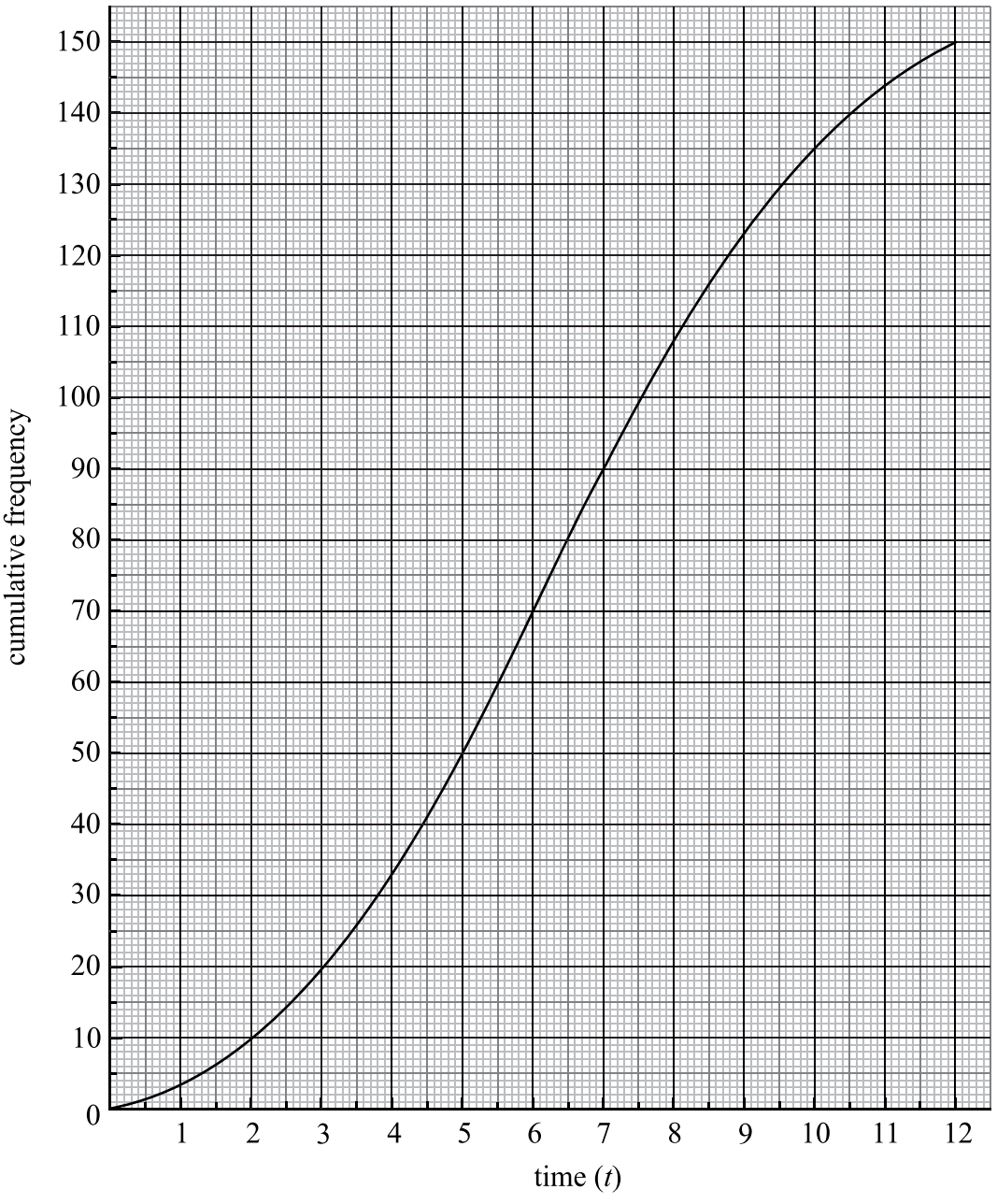
(b) Write down the median score. *[1 mark]*

(c) Find the interquartile range. *[3 marks]*

6) *[Total mark: 24]*

Part A *[Maximum mark: 14]*

The following is the cumulative frequency curve for the time, t minutes, spent by 150 people in a store on a particular day.



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6)

(a) (i) How many people spent less than 5 minutes in the store?

(ii) Find the number of people who spent between 5 and 7 minutes in the store.

(iii) Find the median time spent in the store. *[6 marks]*

(b) Given that 40 % of the people spent longer than k minutes, find the value of k. *[3 marks]*

(c) (i) **On your answer sheet**, copy and complete the following frequency table.

t (minutes)	$0 \le t < 2$	$2 \le t < 4$	$4 \le t < 6$	$6 \le t < 8$	$8 \le t < 10$	$10 \le t < 12$
Frequency	10	23				15

(ii) Hence, calculate an estimate for the mean time spent in the store. *[5 marks]*

7)

In a suburb of a large city, 100 houses were sold in a three-month period. The following **cumulative frequency table** shows the distribution of selling prices (in thousands of dollars).

Selling price P ($ 1000)	$P \le 100$	$P \le 200$	$P \le 300$	$P \le 400$	$P \le 500$
Total number of houses	12	58	87	94	100

(a) Represent this information on a cumulative frequency **curve**, using a scale of 1 cm to represent $ 50 000 on the horizontal axis and 1 cm to represent 5 houses on the vertical axis. *[4 marks]*

(b) Use your curve to find the interquartile range. *[3 marks]*

The information above is represented in the following frequency distribution.

Selling price P ($ 1000)	$0 < P \le 100$	$100 < P \le 200$	$200 < P \le 300$	$300 < P \le 400$	$400 < P \le 500$
Number of houses	12	46	29	a	b

(c) Find the value of a and of b. *[2 marks]*

(d) Use mid-interval values to calculate an estimate for the mean selling price. *[2 marks]*

(e) Houses which sell for more than $ 350 000 are described as *De Luxe*.

(i) Use your graph to estimate the number of *De Luxe* houses sold. Give your answer to the nearest integer.

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