1) 40 students are asked about the number of people in their families.

The table shows the results.

Number of people in family	2	3	4	5	6	7
Frequency	1	1	17	12	6	3

(a) Find

- (i) the mode,
- Answer(a)(i) [1] (ii) the median,
 - Answer(a)(ii) [1]

(iii) the mean.

Answer(a)(iii) [3]

(b) Another *n* students are asked about the number of people in their families.

The mean for these *n* students is 3.

Find, in terms of *n*, an expression for the mean number for all (40 + n) students.

(a) The table shows how many books were borrowed by the 126 members of a library group in a month.

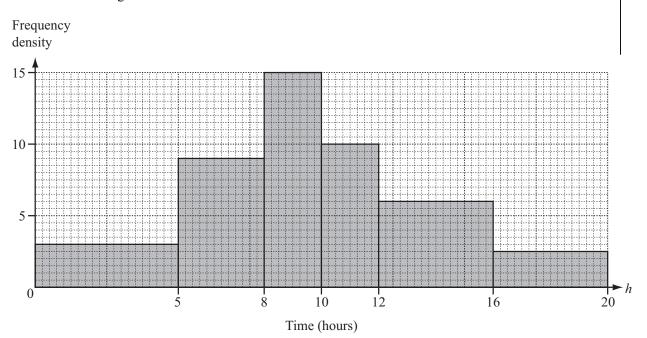
Number of books	11	12	13	14	15	16
Number of members (frequency)	35	28	22	18	14	9

Find the mode, the median and the mean for the number of books borrowed.

Answer(a) mode = median = [6] mean =

(b) The 126 members record the number of hours they read in one week.

The histogram shows the results.



2)

2 continued)

(i) Use the information from the histogram to complete the frequency table.

Number of hours (<i>h</i>)	$0 < h \leq 5$	$5 < h \leq 8$	$8 < h \le 10$	$10 < h \le 12$	$12 < h \le 16$	$16 < h \le 20$
Frequency				20	24	10

[3]

- (ii) Use the information in this table to calculate an estimate of the mean number of hours. Show your working.
- 3) The masses of 60 potatoes are measured.
- The table shows the results.

Mass (<i>m</i> grams)	$10 < m \le 20$	$20 < m \le 40$	$40 < m \le 50$
Frequency	10	30	20

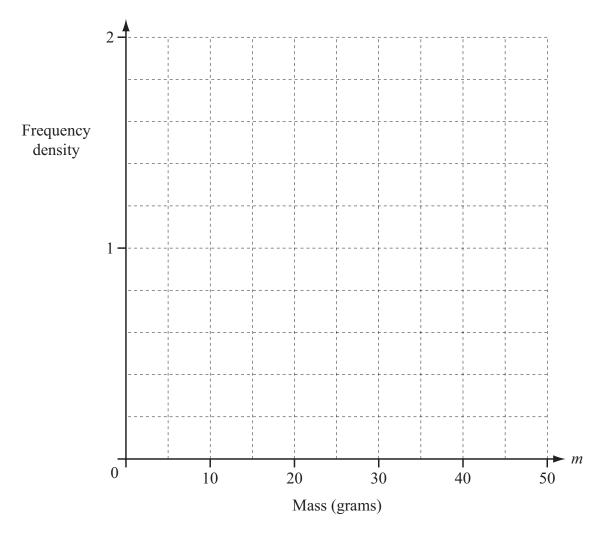
(a) Calculate an estimate of the mean.

Answer(a)

g [4]

3 continued)

(b) On the grid, draw an accurate histogram to show the information in the table.

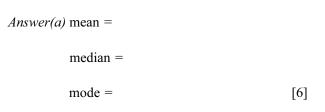


[3]

The table below shows the marks scored by a group of students in a test.

Mark	11	12	13	14	15	16	17	18
Frequency	10	8	16	11	7	8	6	9

(a) Find the mean, median and mode.



(b) The table below shows the time (t minutes) taken by the students to complete the test.

Time (<i>t</i>)	$0 < t \le 10$	$10 < t \le 20$	$20 < t \le 30$	$30 < t \le 40$	$40 < t \le 50$	$50 < t \le 60$
Frequency	2	19	16	14	15	9

(i) Cara rearranges this information into a new table.

Complete her table.

Time (<i>t</i>)	$0 < t \le 20$	$20 < t \le 40$	$40 < t \le 50$	$50 < t \le 60$
Frequency				9

[2]

(ii) Cara wants to draw a histogram to show the information in part (b)(i).

Complete the table below to show the interval widths and the frequency densities.

	$0 < t \le 20$	$20 < t \le 40$	$40 < t \le 50$	$50 < t \le 60$
Interval width				10
Frequency density				0.9

[3]

4 continued)

(c) Some of the students were asked how much time they spent revising for the test.

10 students revised for 2.5 hours, 12 students revised for 3 hours and n students revised for 4 hours.

The mean time that **these** students spent revising was 3.1 hours.

Find *n*.

Show all your working.

Answer(c) n =

[4]

Time (<i>t</i> mins)	$0 < t \le 20$	$20 < t \le 35$	$35 < t \le 45$	$45 < t \le 55$	$55 < t \le 70$	$70 < t \le 80$
Frequency	6	15	19	37	53	20

(a) (i) In which interval is the median time?

$$Answer(a)(i) \qquad [1]$$

(ii) Using the mid-interval values 10, 27.5,calculate an estimate of the mean time.

Answer(a)(ii) min [3]

(b) (i) Complete the table of cumulative frequencies.

Time (<i>t</i> mins)	<i>t</i> ≤ 20	<i>t</i> ≤ 35	<i>t</i> ≤ 45	<i>t</i> ≤ 55	<i>t</i> ≤ 70	<i>t</i> ≤ 80	
Cumulative frequency	6	21					
							[2

(ii) On the grid, label the horizontal axis from 0 to 80, using the scale 1 cm represents 5 minutes and the vertical axis from 0 to 150, using the scale 1 cm represents 10 students.

Draw a cumulative frequency diagram to show this information. [5]

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(c) Use your graph to estimate

(i)	the median time,	Answer(c)(i)	min	[1]
(ii)	the inter-quartile range,	Answer(c)(ii)	min	[2]
		Answer(C)(II)	min	

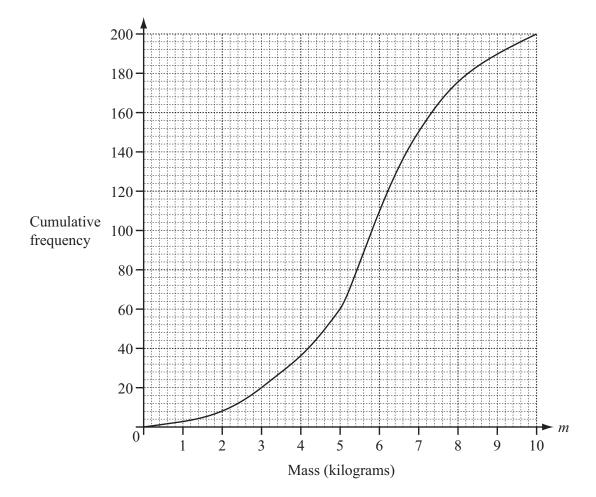
(iii) the number of students whose time was in the range $50 < t \le 60$,

(iv) the probability, as a fraction, that a student, chosen at random, took longer than 50 minutes,

$$Answer(c)(iv)$$
[2]

(v) the probability, as a fraction, that two students, chosen at random, both took longer than 50 minutes.

$$Answer(c)(v)$$
[2]



The masses of 200 parcels are recorded.

The results are shown in the cumulative frequency diagram above.

(a) Find

(i)	the	median,
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	Answer(a)	1)	kg [1]
(ii)	the lower quartile,		
	Answer(a)(i	i)	kg [1]
(iii)	the inter-quartile range,		
	Answer(a)(ii)	kg [1]
(iv)	the number of parcels with a mass greater than 3.5 kg.		
	Answer(a)(iv)	[2]

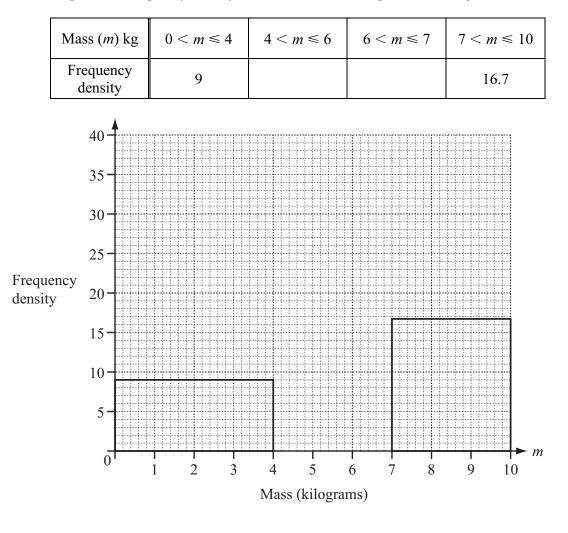
(b) (i) Use the information from the cumulative frequency diagram to complete the grouped frequency table.

Mass (<i>m</i>) kg	$0 < m \leq 4$	$4 < m \le 6$	$6 < m \le 7$	$7 < m \le 10$
Frequency	36			50

(ii) Use the grouped frequency table to calculate an estimate of the mean.

Answer(b)(ii) kg [4]

(iii) Complete the frequency density table and use it to complete the histogram.



[2]

[4]