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.

Answer(b) [2]

2) **(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.

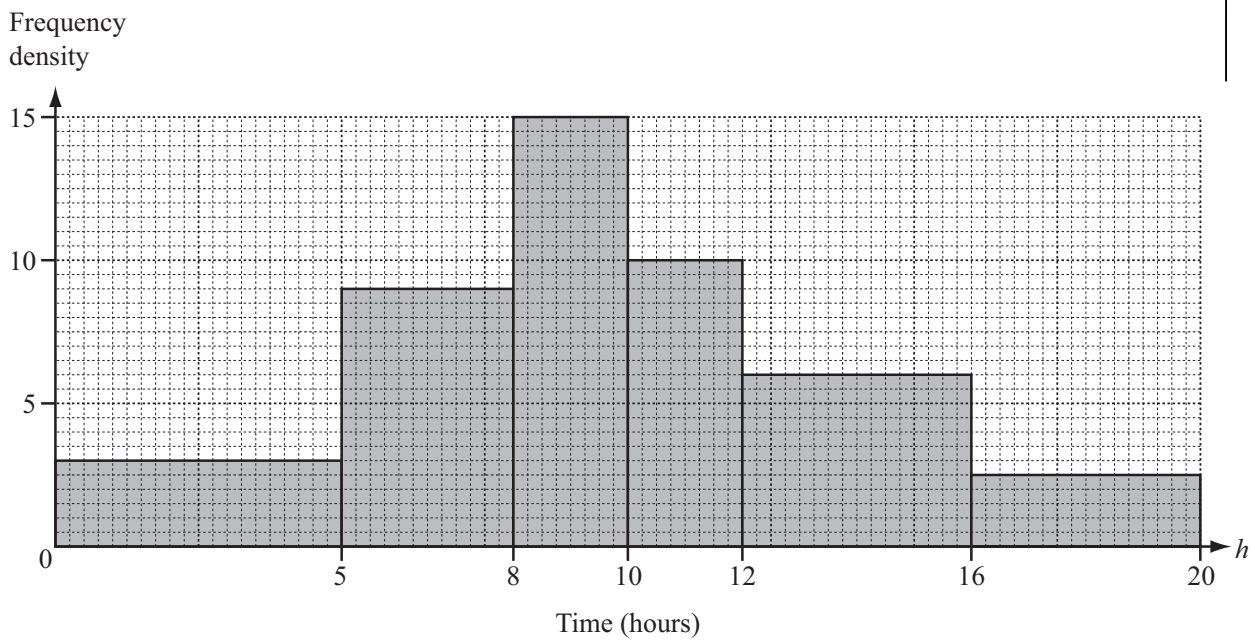
Answer(a) mode =

median =

mean = [6]

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

The histogram shows the results.



2 continued)

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

Number of hours (h)	$0 < h \leqslant 5$	$5 < h \leqslant 8$	$8 < h \leqslant 10$	$10 < h \leqslant 12$	$12 < h \leqslant 16$	$16 < h \leqslant 20$
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.

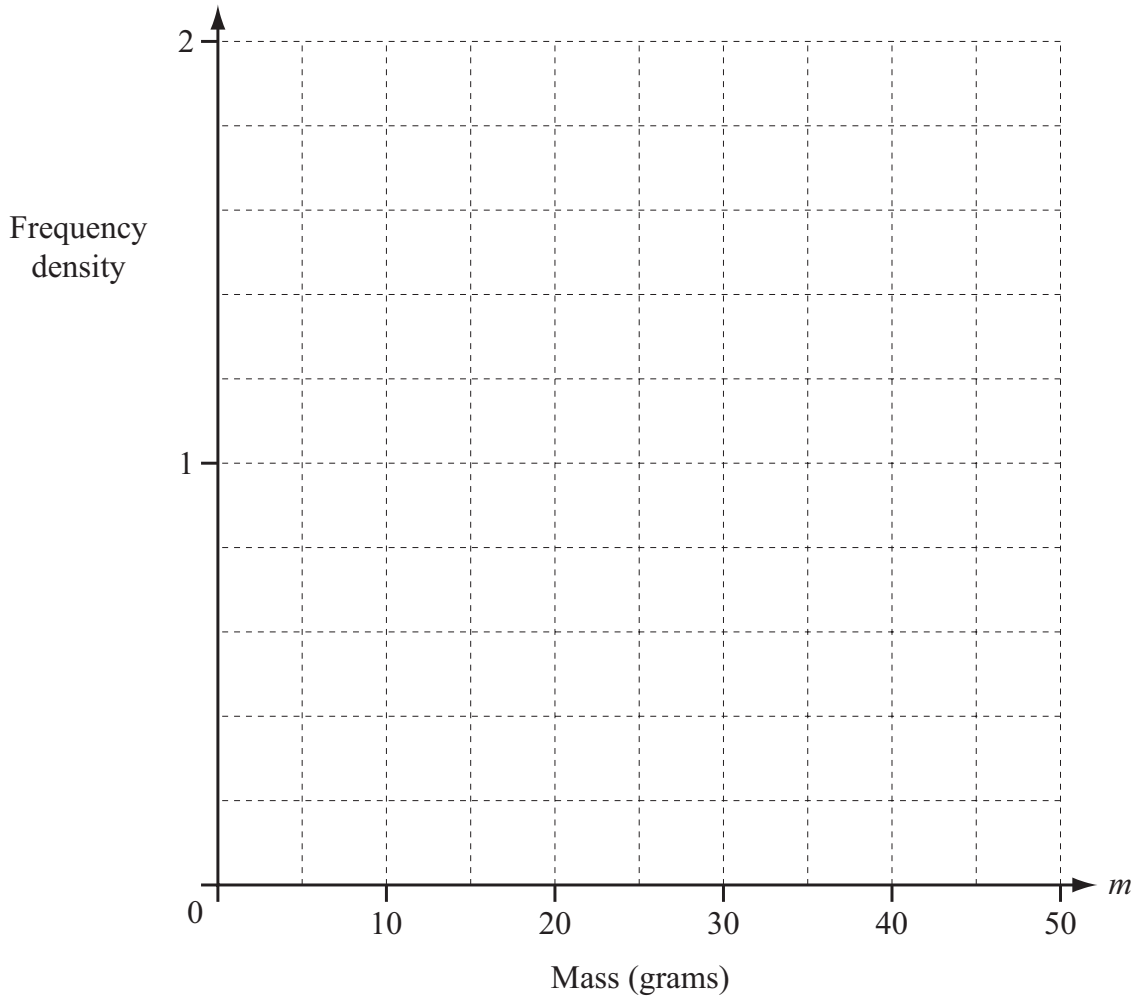
Mass (m grams)	$10 < m \leqslant 20$	$20 < m \leqslant 40$	$40 < m \leqslant 50$
Frequency	10	30	20

(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]

4) 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.

Answer(a) mean =

median =

mode = [6]

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

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

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

Complete her table.

Time (t)	$0 < t \leqslant 20$	$20 < t \leqslant 40$	$40 < t \leqslant 50$	$50 < t \leqslant 60$
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.

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

[3]

(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]

5)

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

The table shows the times taken, in minutes, by 150 students to complete their homework on one day.

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

Answer(a)(i) [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 (t mins)	$t \leqslant 20$	$t \leqslant 35$	$t \leqslant 45$	$t \leqslant 55$	$t \leqslant 70$	$t \leqslant 80$
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]

5 continued on next page)

(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]

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

Answer(c)(iii) [1]

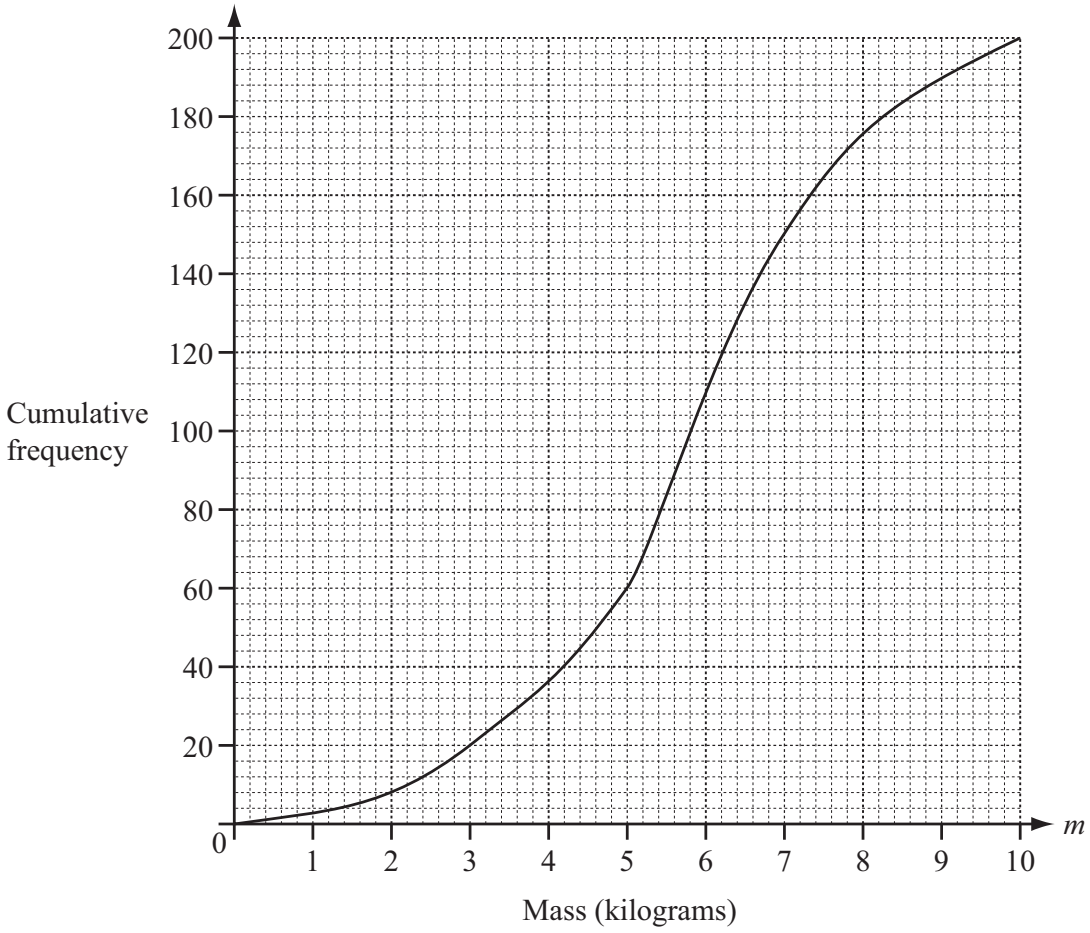
(iv) the probability, as a fraction, that a student, chosen at random, took longer than 50 minutes,

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]

6)



The masses of 200 parcels are recorded.

The results are shown in the cumulative frequency diagram above.

(a) Find

(i) the median,

Answer(a)(i) ..... kg [1]

(ii) the lower quartile,

Answer(a)(ii) ..... kg [1]

(iii) the inter-quartile range,

Answer(a)(iii) ..... 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 (m) kg	$0 < m \leqslant 4$	$4 < m \leqslant 6$	$6 < m \leqslant 7$	$7 < m \leqslant 10$
Frequency	36			50

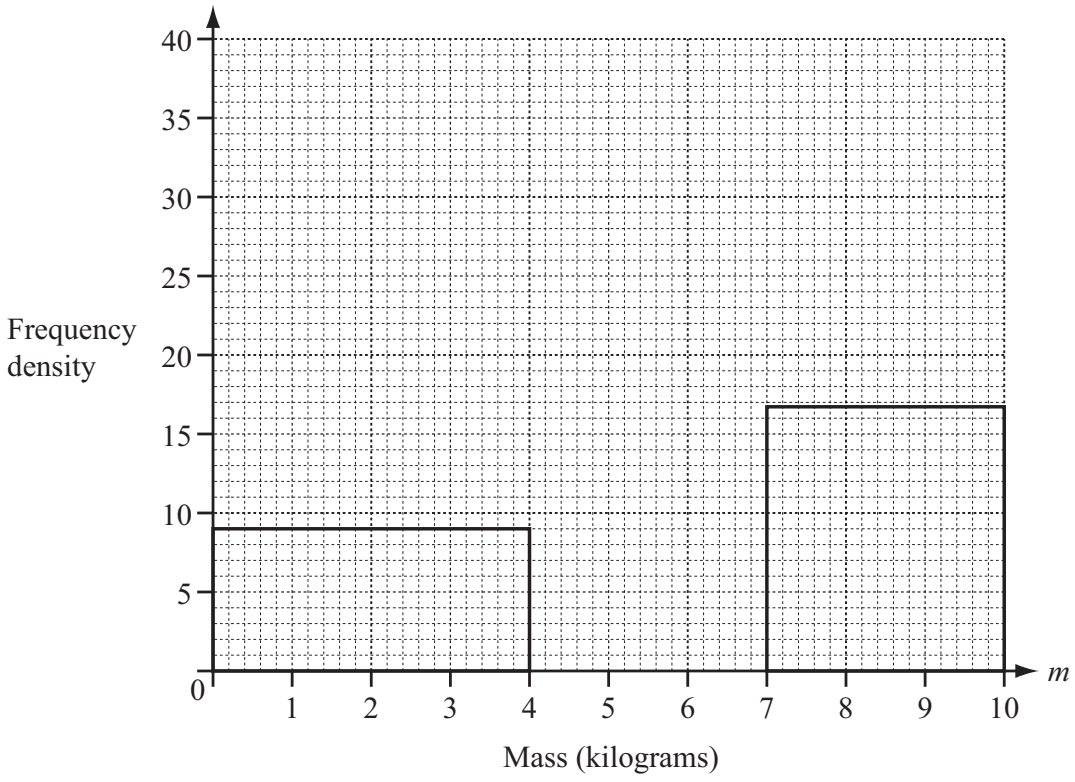
[2]

(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.

Mass (m) kg	$0 < m \leqslant 4$	$4 < m \leqslant 6$	$6 < m \leqslant 7$	$7 < m \leqslant 10$
Frequency density	9			16.7



[4]