1 Here is a list of numbers.

3 3 3 3 4 4 5 7 8

Write down the mode of the numbers.

Mode = the most frequent

(1)

3

(Total for Question 1 is 1 mark)

2 The table shows information about the number of social media accounts used by each of 300 students.

Number of social media accounts	Frequency	cumulative freq.
0	3	3
1	57	60
2	84	144
3	75	219 ← contains the 150th element.
4	81	300

(a) Work out the total number of social media accounts used by these students.

multiply the number of accounts by its frequency, then add them all up.

(0 x 3)
(1 x 57)
(2 x 84)
(3 x 75)
(4 x 81) (1)

\+ 774

774 (1)

.....

(2)

(b) Find the median number of social media accounts used by these students.

Median = middle value

300 students so median value is

$\frac{300}{2}$ = 150th value. (1)

3 (1)

.....

(2)

(Total for Question 2 is 4 marks)

3 Here is the shoe size of each of 12 boys in a class.

1	2	3	4	5	6	7	8	9	10	11	12
4	5	6	6	6	7	7	8	8	8	8	9

(a) Find the median.

median for even sets of number = mean of two middle values

in this case, 7 and 7.

7 (1)

.....

(1)

(b) Work out the range.

9 - 4 = 5

Greatest value − smallest value

5 (1)

.....

(1)

For the shoe sizes of each of 12 girls in the class,

the median size is 6
the range is 3

(c) Compare the distribution of the shoe sizes of the boys with the distribution of the shoe sizes of the girls.

The median shoe size of the boys is greater than girls. (7 to 6)

The range of the boys shoe size is bigger than girls. (5 to 3)

(2)

.....

.....

.....

.....

(2)

(Total for Question 3 is 4 marks)

4 Here is a list of 8 letters.

In this case, A is the mode.

B C A A A A B A

(a) Write down the mode.

most common = appears the most

A (1)

.....

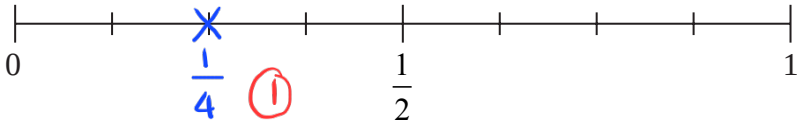
(1)

One of the 8 letters is going to be picked at random.

(b) (i) On the probability scale, mark with a cross (×) the probability that this letter will be B.

B appears 2 times out of 8 letters.

$\frac{2}{8} = \frac{1}{4}$



(1)

(1)

(ii) Find the probability that this letter will be C.

C only appears once out of 8 letters. The probability of it getting picked will be $\frac{1}{8}$.

$\frac{1}{8}$ (1)

.....

(1)

(Total for Question 4 is 3 marks)

5 Hetvi asked her friends how many stickers they each have in their collection.
Here are her results.

77	86	94	87	71	98
74	103	71	85	82	84
97	91	88	89	75	

(a) Show this information in a stem and leaf diagram.

7	1 1 4 5 7
8	2 4 5 6 7 8 9
9	1 4 7 8
10	3

Key: eg 10 | 3 represents 103

(3)

(b) Find the median number of stickers.

Number of terms = 17

Median = $\frac{17+1}{2}$ = 9th term

∴ 86

median for odd total of numbers: $\frac{n+1}{2}$

86

(2)

(Total for Question 5 is 5 marks)

6 The table shows information about the heights of 80 teenagers.

Midpoint : $\frac{\text{upper limit - lower limit}}{2}$

Midpoint	Height (h cm)	Frequency
155	$150 < h \leqslant 160$	8
165	$160 < h \leqslant 170$	14
175	$170 < h \leqslant 180$	24
185	$180 < h \leqslant 190$	30
195	$190 < h \leqslant 200$	4

Work out an estimate for the mean height of the teenagers.

Finding total height of the teenagers:

$(155 \times 8) + (165 \times 14) + (175 \times 24) + (185 \times 30) + (195 \times 4)$

$= 1240 + 2310 + 4200 + 5500 + 780$ (1)

$= 14080$

Finding mean height of the teenagers:

$= \frac{14080}{80} = 176$ (1)

176 (1) ..... cm

(Total for Question 6 is 3 marks)

7 (b) Work out the mean number of points. Mean = $\frac{\text{Total number of points}}{\text{Number of students}}$

Mean = $\frac{143 + 121 + 45 + 19}{4}$ (1)

$= \frac{328}{4} = 82$ (1)

82

(2)

(Total for Question 7 is 2 marks)

8 There are 30 women and 20 men at a gym.

The mean height of all 50 people is 167.6 cm
The mean height of the 20 men is 182 cm

Work out the mean height of the 30 women.

Finding the total height of 50 people :

$167.6 \text{ cm} \times 50 = 8380 \text{ cm}$ (1)

Finding the total height of 20 men :

$182 \text{ cm} \times 20 = 3640 \text{ cm}$

Finding mean height of 30 women :

$\frac{8380 - 3640}{30}$ (1) $= 158 \text{ cm}$ (1)

158 cm

(Total for Question 8 is 3 marks)

9 Here are 6 numbers.

13 5 4 9 3 8

Work out the mean.

mean = add up all the numbers / how many there are

$\frac{13+5+4+9+3+8}{\text{6 numbers in total}} = \frac{42}{6} = 7$ ✓(1)

✓(1)

7

(Total for Question 9 is 2 marks)

10 There are 3 cinemas **A**, **B** and **C**.

The mean number of seats per cinema is 380

There are 350 seats in cinema **A**.
There are 250 seats in cinema **B**.

Work out the number of seats in cinema **C**.

Finding total number of seats in all cinemas:

$380 \times 3 = 1140$ seats (1)

Finding total of seats in cinema A and B:

$350 + 250 = 600$ seats (1)

Finding number of seats in Cinema C:

$1140 - 600 = 540$ seats (1)

(1)

540

(Total for Question 10 is 4 marks)

11 The table shows the number of books read by four people in one month.

Person	Number of books
Ximena	7
Martha	9
Kezia	1
Tabby	5

(a) Work out the median number of books.

1, 5, 7, 9

(1) $\frac{5+7}{2} = 6$

6 (1)

(2)

(b) Find the range.

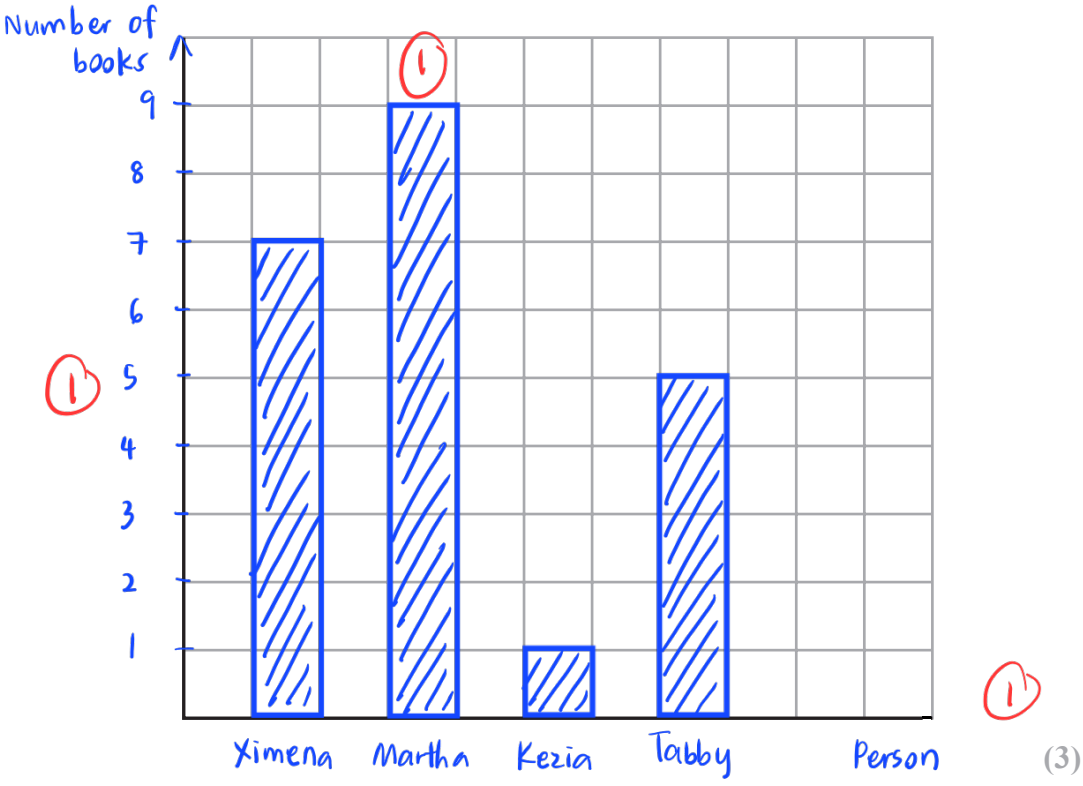
Range : largest value − smallest value

$9 - 1 = 8$

8 (1)

(1)

(c) On the grid, draw a bar chart to show the information in the table.



(1) (1) (1)

(3)

(Total for Question 11 is 6 marks)

12 Tessa recorded the times that 15 adults took to complete a run.
She showed her results in a stem and leaf diagram.

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

Key:
4 | 5 represents 45 minutes

(a) Find the median.

median for odd data sets :
$\frac{n+1}{2}$ th term
from stem and leaf diagram
Median = $\frac{15+1}{2}$ = 8th term
= 64 (1)

64 minutes
(1)

(b) Find the range.

range : largest data - smallest data
= 81 - 45 (1)
= 36 (1)

$\begin{array}{r} 7\not{8}1 \\ -\ 45 \\ \hline 36 \end{array}$

36 minutes
(2)

Tessa also recorded the times that 15 children took to complete the run.

For the children, the median was 75 minutes.

(c) Compare the times that the adults took with the times that the children took.

The adults were faster because they have smaller median. (1)

(1)

(Total for Question 12 is 4 marks)

13 The table shows information about the weights of 120 oranges.

Weight (w grams)	Frequency	Cumulative Frequency
$50 < w \leqslant 100$	34	34
$100 < w \leqslant 150$	29	63
$150 < w \leqslant 200$	27	90
$200 < w \leqslant 250$	19	109
$250 < w \leqslant 300$	11	120

(a) Find the class interval that contains the median.

Median : $\left(\frac{120}{2}\right)$ th term = 60 th term ← located in $100 < w \leq 150$ class interval

$100 < w \leq 150$ (1)

.....

(1)

(b) Calculate an estimate for the mean weight of the 120 oranges.
Give your answer correct to 3 significant figures.

$$\text{Mean} = \frac{(75 \times 34) + (125 \times 29) + (175 \times 27) + (225 \times 19) + (275 \times 11)}{120} \quad (1) \quad (1)$$

$= 151.67$ g

≈ 152 g (3 s.f.) (1)

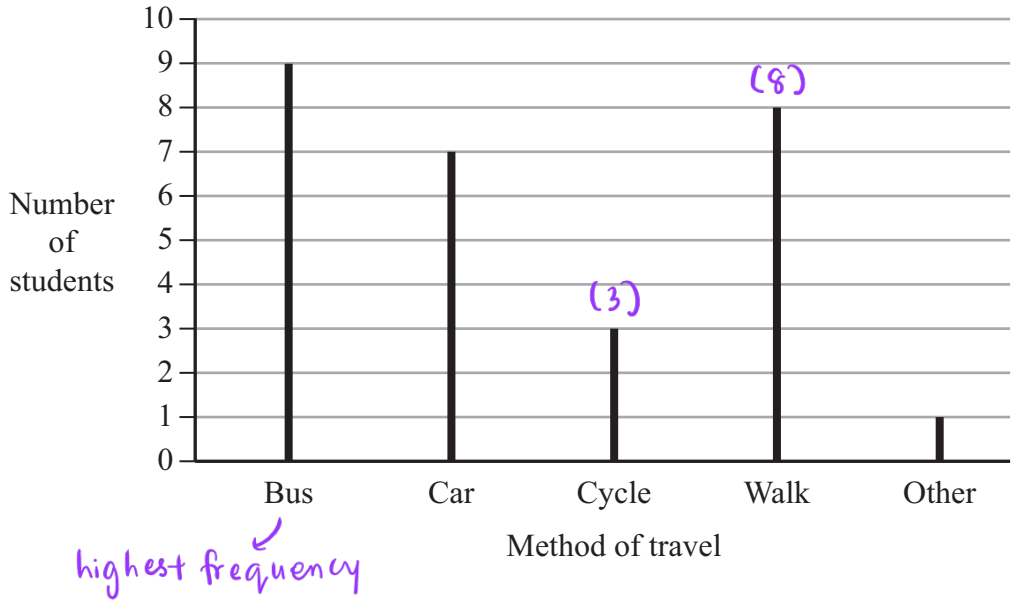
152

..... grams

(3)

(Total for Question 13 is 4 marks)

14 Julie asks some students how they travel to school.
The chart shows her results.



highest frequency

(a) Write down which method of travel is the mode.

Mode : highest frequency

Bus (1)

.....

(1)

More students walk to school than cycle to school.

(b) How many more?

Walk : 8 students
Cycle : 3 students

Difference : 8 - 3 = 5 students

5 (1)

.....

(1)

(Total for Question 14 is 2 marks)