1 Here is a list of numbers.

$$12 \qquad 15 \qquad 14 \qquad 17 \qquad 22 \qquad 19 \qquad 13$$

Bridgit says,

"To work out the median you find the middle number,
so the median of these numbers is 17"

Bridgit's answer is **not** correct.

(a) What is wrong with Bridgit's method?

....

....

(1)

(b) Work out the range of the numbers in the list.

....

(2)

(c) Work out the mean of the numbers in the list.

....

(2)

(Total for Question 1 is 5 marks)

2 Jenny is asked to find the value of $12 - 2 \times 4$

Here is her working.

$$12 - 2 \times 4 = 10 \times 4 = 40$$

Jenny's answer is wrong.

(a) Explain what Jenny has done wrong.

....

....

(1)

Rehan is asked to find the range of the numbers   3   1   8   7   5

Here is his working.

$$\text{Range} = 5 - 3 = 2$$

This is wrong.

(b) Explain why.

....

....

(1)

(Total for Question 2 is 2 marks)

Autumn 2019 Paper 2 Q9

3 Here is a list of numbers.

6   4   8   9   4   3

(a) Work out the median.

....

(2)

Aisha picks at random one of the numbers.

(b) What is the probability that she picks an odd number?

....

(2)

Clara has five cards.
There is a number on each card.
Two of the numbers are hidden.

| 3 | ? | 8 | 5 | ? |

The mode of the five numbers is 3
The mean of the five numbers is 5

(c) Work out the two numbers that are hidden.

.... , ...

(2)

(Total for Question 3 is 6 marks)

4 The stem and leaf diagram below gives information about the ages of people in a social club.

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

Key: 4|2 represents 42 years

Find the range of these ages.

.... years

(Total for Question 4 is 2 marks)

5 Find the number that is exactly halfway between 7 and 15

....

(Total for Question 5 is 1 mark)

6 In Adam's garden, the flowers are only red or white or yellow or blue.

The chart shows the number of red flowers, the number of white flowers and the number of yellow flowers.
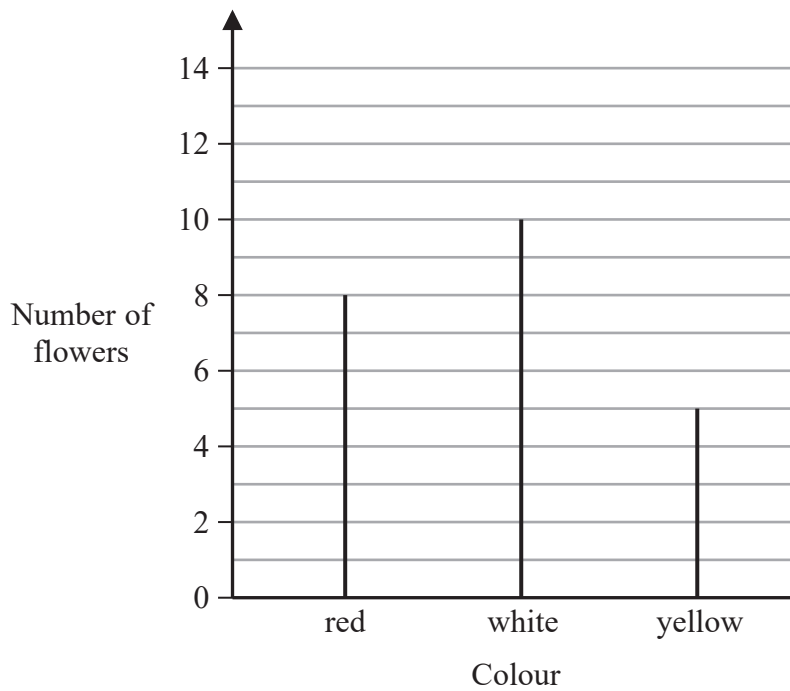
The total number of flowers is 30

(a) Work out the number of blue flowers.

....

(2)

(b) Write down the mode.

....

(1)

(Total for Question 6 is 3 marks)

7 The incomplete table gives some information about the lengths of the planks of wood in Ben's workshop.

Length of plank (metres)	Number of planks
3	5
2.5	8
2	
1.5	14
1	10

The total length of these planks is 92 metres.

Work out the number of planks of length 2 metres in Ben's workshop.

....

(Total for Question 7 is 3 marks)

8 Four students play a game.
The table shows the number of points each student has.

Student	Ali	Barbara	Calliope	Danesh
Number of points	143	121	45	19

Barbara has more points than Danesh.

(a) How many more?

....

(1)

(b) Work out the mean number of points.

....

(2)

(Total for Question 8 is 3 marks)

9 Here is a list of numbers.

3   3   3   3   4   4   5   7   8

Write down the mode of the numbers.

....

(Total for Question 9 is 1 mark)

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

Number of social media accounts	Frequency
0	3
1	57
2	84
3	75
4	81

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

....

(2)

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

....

(2)

(Total for Question 10 is 4 marks)

11 This sign was in a doctor's waiting room.

> 115 appointments were missed last month.
>
> These missed appointments were a total of 25.3 hours.

Work out the mean length of time for each missed appointment.
Give your answer in minutes.

.... minutes

(Total for Question 11 is 3 marks)

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

4   5   6   6   6   7   7   8   8   8   8   9

(a) Find the median.

....
(1)

(b) Work out the range.

....
(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.

....

....

....

....

....

(2)

(Total for Question 12 is 4 marks)

13 The table shows information about the weekly earnings of 20 people who work in a shop.

Weekly earnings (£x)	Frequency
$150 < x \leqslant 250$	1
$250 < x \leqslant 350$	11
$350 < x \leqslant 450$	5
$450 < x \leqslant 550$	0
$550 < x \leqslant 650$	3

(a) Work out an estimate for the mean of the weekly earnings.

£................................

(3)

Nadiya says,

"The mean may **not** be the best average to use to represent this information."

(b) Do you agree with Nadiya?
You must justify your answer.

....

....

(1)

(Total for Question 13 is 4 marks)

14 The table shows some information about the dress sizes of 25 women.

Dress size	Number of women
8	2
10	9
12	8
14	6

(a) Find the median dress size.

....

(1)

3 of the 25 women have a shoe size of 7

Zoe says that if you choose at random one of the 25 women, the probability that she has either a shoe size of 7 or a dress size of 14 is $\dfrac{9}{25}$ because

$$\frac{3}{25} + \frac{6}{25} = \frac{9}{25}$$
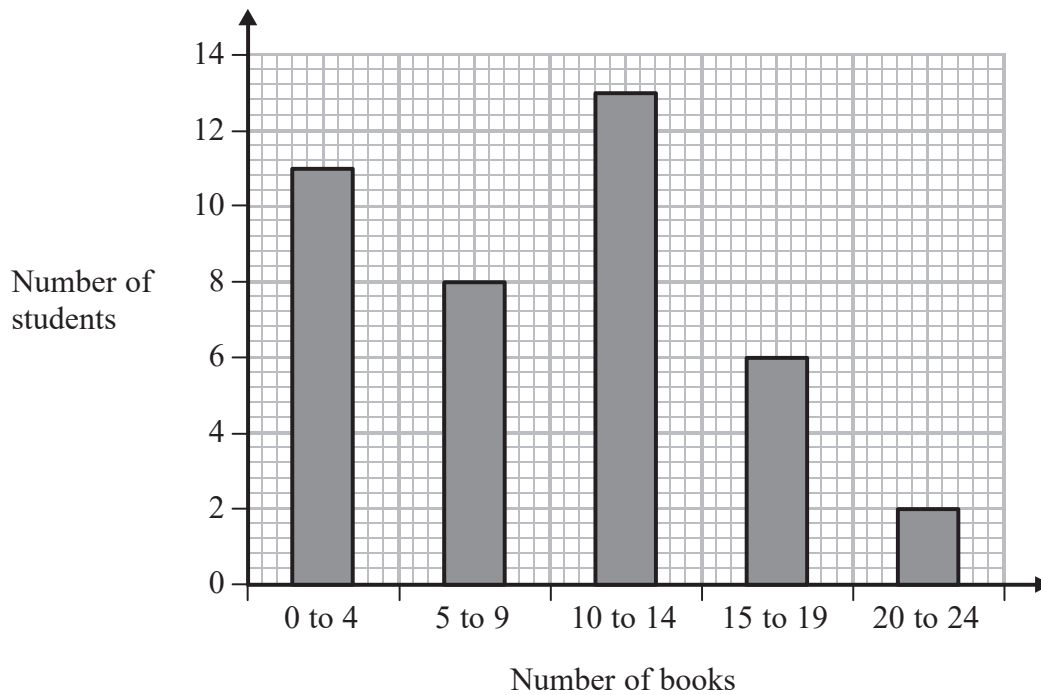
(b) Is Zoe correct?
You must give a reason for your answer.

....

....

(1)

(Total for Question 14 is 2 marks)

15 Fran asks each of 40 students how many books they bought last year.

The chart below shows information about the number of books bought by each of the 40 students.

(a) Work out the percentage of these students who bought 20 or more books.

....%

(2)

(b) Show that an estimate for the mean number of books bought is 9.5
You must show all your working.

(4)

(Total for Question 15 is 6 marks)

16 Marla buys some bags of buttons.

There are 19 buttons or 20 buttons or 21 buttons or 22 buttons in each bag.

The table gives some information about the number of buttons in each bag.

Number of buttons	Frequency
19	....
20	7
21	3
22	1

The total number of buttons is 320

Complete the table.

(Total for Question 16 is 3 marks)

17 4 red bricks have a mean weight of 5 kg.
5 blue bricks have a mean weight of 9 kg.
1 green brick has a weight of 6 kg.

Donna says,

"The mean weight of the 10 bricks is less than 7 kg."

Is Donna correct?
You must show how you get your answer.

(Total for Question 17 is 3 marks)

18 The table gives information about the times taken, in seconds, by 18 students to run a race.

Time (*t* seconds)	Frequency
$5 < t \leqslant 10$	1
$10 < t \leqslant 15$	2
$15 < t \leqslant 20$	7
$20 < t \leqslant 25$	8

Work out an estimate for the mean time.
Give your answer correct to 3 significant figures.

.... seconds

(Total for Question 18 is 3 marks)

19 The table shows information about the numbers of points scored by 30 students in a quiz.

Number of points	Frequency
0	4
1	3
2	7
3	5
4	6
5	5

(a) Find the modal number of points.

....

(1)

(b) Work out the total number of points scored.

....

(2)

(Total for Question 19 is 3 marks)

20 The table gives information about the number of points scored by each of 16 students in a game.

Number of points	Frequency
0	1
1	3
2	5
3	4
4	3

Tina worked out the median of the number of points scored to be 5

(a) Explain why it is **not** possible for the median to be 5

....

....

....

(1)

Tina also worked out the total number of points scored by the 16 students in the game. Here is her working.

$$(0 \times 1) + (1 \times 3) + (2 \times 5) + (3 \times 4) + (4 \times 3) = 1 + 3 + 10 + 12 + 12 = 38$$

Tina made a mistake in her working to find the total number of points scored.

(b) Describe the mistake that Tina made.

....

....

....

(1)

(Total for Question 20 is 2 marks)

21 The table shows information about the heights, in cm, of a group of Year 9 girls.

least height	150 cm
median	165 cm
greatest height	170 cm

This stem and leaf diagram shows information about the heights, in cm, of a group of 15 Year 9 boys.

15	8 9 9
16	4 5 7 7 8
17	0 3 4 4 7
18	0 2

Key: 15 │ 8 represents 158 cm

Compare the distribution of the heights of the girls with the distribution of the heights of the boys.

....

....

....

....

....

....

(Total for Question 21 is 3 marks)

22 Akhtar, Ben and Carl each have some money.

Akhtar has £65
Ben has £100
Carl has three £5 notes, one £20 note and some £10 notes.

The mean amount of money per person is £80

How many £10 notes does Carl have?

....

(Total for Question 22 is 4 marks)

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

Height (h cm)	Frequency
$150 < h \leqslant 160$	8
$160 < h \leqslant 170$	14
$170 < h \leqslant 180$	24
$180 < h \leqslant 190$	30
$190 < h \leqslant 200$	4

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

.... cm

(Total for Question 23 is 3 marks)

24 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.

.... cm

(Total for Question 24 is 3 marks)