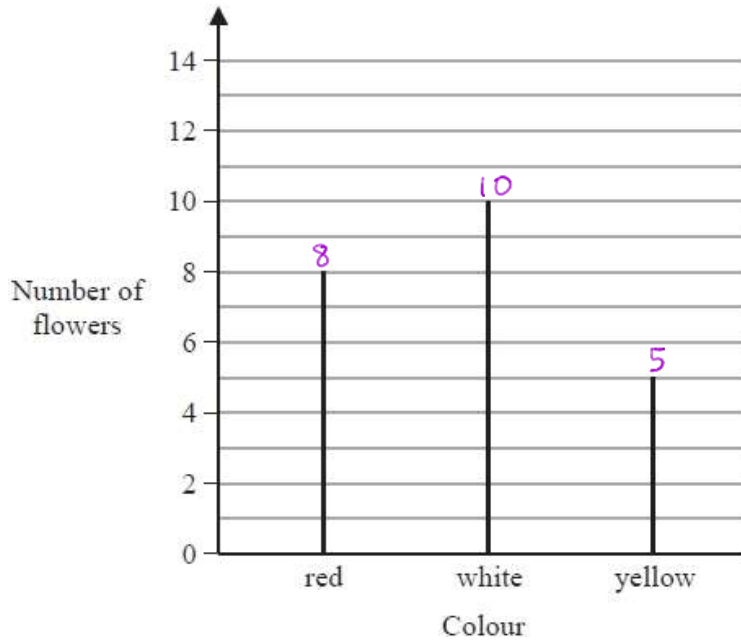


FULL MODEL ANSWERS

Q1. NON-CALCULATOR

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.

$$8 + 10 + 5 = 23$$

$$30 - 23$$

7

(2)

(b) Write down the mode.

most common

White

(1)

(Total for question = 3 marks)

Q2. NON-CALCULATOR

Yan recorded the ages, in years, of a sample of people at a fairground.

He drew this stem and leaf diagram for his results.

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

Key:

1|5 represents 15 years of age

(a) Write down the number of people in the sample.

how many leaves?

21

(1)

(b) Write down the mode.

Most Common

17

.....years

(1)

(c) Work out the range.

biggest - smallest

55 - 15

40

.....years

(2)

(Total for Question is 4 marks)

Q3. NON-CALCULATOR

The table shows information about the ages of all the people at a party.

Age (years)	Frequency
11 - 20	6
21 - 30	16
31 - 40	10
41 - 50	8

(a) Work out the total number of these people who were aged 40 or less.

6 + 16 + 10

32

.....

(1)

Andy says that the range of ages is 39 years because $50 - 11 = 39$

(b) The range may not be 39 years. Explain why.

We don't know the exact ages. The minimum may not be 11, it could be anything between 11-20. The maximum could be anything between 41-50.

(1)

(Total for question = 2 marks)

Q4. NON-CALCULATOR

A bus company recorded the ages, in years, of the people on coach A and the people on coach B.

Here are the ages of the 23 people on coach A.

41 42 44 48 52 53 53 56 57 57 59
 60 61 63 64 64 66 67 69 74 77 79

(a) Complete the table below to show information about the ages of the people on coach A.

Median	59	$\frac{n+1}{2} = \frac{23+1}{2} = 12^{\text{th}}$
Lower quartile	53	$\frac{n+1}{4} = \frac{23+1}{4} = 6^{\text{th}}$
Upper quartile	66	$\frac{3(n+1)}{4} = \frac{3(23+1)}{4} = 18^{\text{th}}$
Least age	41	
Greatest age	79	

(2)

Here is some information about the ages of the people on coach B.

Median	70
Lower quartile	54
Upper quartile	73
Least age	42
Greatest age	85

Richard says that the people on coach A are younger than the people on coach B.

(b) Is Richard correct? You must give a reason for your answer.

In terms of the median and quartiles
 Richard is correct, but not all of coach
 A are younger than all of coach B.

(1)

Richard says that the people on coach A vary more in age than the people on coach B.

(c) Is Richard correct? You must give a reason for your answer.

The interquartile range for coach A is : $66 - 53 = 13$
 The interquartile range for coach B is : $73 - 54 = 19$
 Richard is wrong as IQR is smaller for A.

(1)

(Total for question = 4 marks)

Q5. NON-CALCULATOR

Jake and Sarah each played a computer game six times.

Their scores for each game are shown below.

<u>Jake</u>	10	9	8	11	12	8
<u>Sarah</u>	2	10	7	14	4	10

range = biggest - smallest

(a) Who had the most consistent scores, Jake or Sarah? You must give a reason for your answer.

smaller range

Jake's range: $12 - 8 = 4$

Sarah's range: $14 - 2 = 12$

Jake's range was smaller than Sarah's, so his scores were more consistent.

(1)

Jake played a different game 20 times.

The stem and leaf diagram shows information about his scores.

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

2/6

Key
1 2 represents 12 points

most common

Jake said his modal score was 6 points because 6 occurs most often in the diagram.

(b) Is Jake correct? You must explain your answer.

By looking at the key we can see 2|6 means 26, not 6. Jake is wrong.

(1)

(Total for question = 2 marks)

Q6. CALCULATOR ALLOWED

Here is a list of numbers

12 19 12 15 11 15 12 13 17

Find the middle median.

Values in order: 11 12 12 12 13 15 15 17 19
13

(Total for question = 2 marks)

Q7. CALCULATOR ALLOWED

Matthew has eight cards.

There is a number on each card.

3
1
2
3
6
8
7
2

(a) Work out the range of the numbers on the cards.

biggest - smallest

$8 - 1$

7

(1)

(b) Work out the median of the numbers on the cards.

middle number

Values in order: 1 2 2 3 3 6 7 8

3

(2)

(Total for question = 3 marks)

Q8. CALCULATOR ALLOWED

Here is a list of numbers.

12 15 14 17 22 19 13

Bridgit says,

12 13 14 15 17 19 22

"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?

Bridgit has not ordered the numbers.

The median is 15.

(1)

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

biggest - smallest

$22 - 12$

10

(2)

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

total ÷ number of values

$112 \div 7$

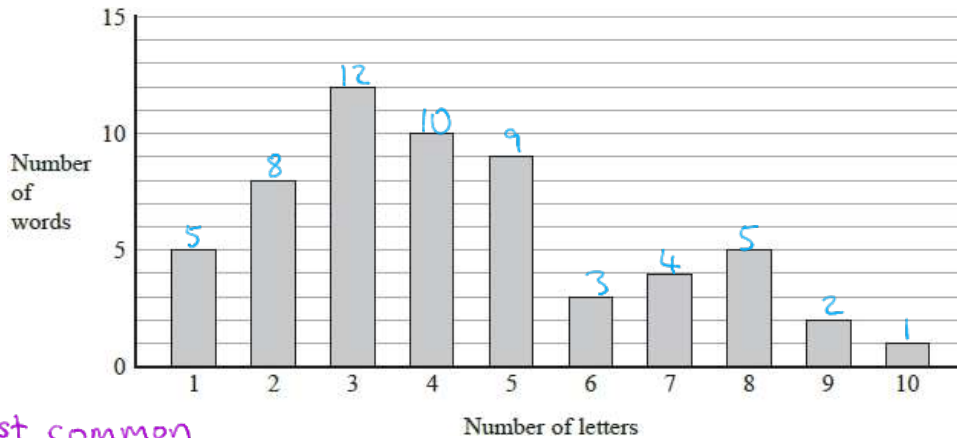
16

(2)

(Total for question = 5 marks)

Q9. CALCULATOR ALLOWED

The bar chart shows some information about the number of letters in each word in a paragraph.



most common

(a) What is the modal number of letters in a word?

3

(1)

biggest - smallest

(b) Work out the range for the numbers of letters in a word.

10 - 1

9

(2)

(c) Work out the fraction of the words that have at least six letters.

$$\frac{3 + 4 + 5 + 2 + 1}{5 + 8 + 12 + 10 + 9 + 3 + 4 + 5 + 2 + 1}$$

$\frac{15}{59}$

(3)

(Total for question = 6 marks)

Q10. CALCULATOR ALLOWED

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.

B
I
D
M
A
S
↓

(a) Explain what Jenny has done wrong.

Jenny should have multiplied before subtracting: $12 - 2 \times 4 = 12 - 8 = 4$

(1)

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

biggest - smallest

Here is his working.

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

This is wrong.

(b) Explain why.

She has assumed the numbers are in order, but they aren't. Should be: $8 - 1 = 7$

(1)

(Total for question = 2 marks)

Q11. CALCULATOR ALLOWED

Here is a list of numbers.

6 4 8 9 4 3

(a) Work out the median.

middle number
values in order : 3 4 4 6 8 9

$$\frac{4+6}{2}$$

.....
5

(2)

Aisha picks at random one of the numbers.

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

odd: 3, 9

$$\frac{2}{6}$$

$$\frac{1}{3}$$

.....
(2)

Clara has five cards.

There is a number on each card.

Two of the numbers are hidden.



The mode of the five numbers is 3 ← *at least 2 numbers are 3*

The mean of the five numbers is 5 ← *so total must be 5 × 5 = 25*

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

$$25 - 3 - 3 - 8 - 5 = 6$$

..... *3* , *6*

(2)

(Total for question = 6 marks)