

EXERCISE 21A

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1. Consider the following numbers:

68, 76, 63, 75, 93, 83, 70, 115, 82, 105, 90, 103, 92, 52, 99, 73, 75, 63, 77 and 71.

(i) Arrange these numbers in ascending order.

(ii) What is the range of these numbers?

Solution:

(i) We can write the above numbers in ascending order as

52, 63, 63, 68, 70, 71, 73, 75, 75, 76, 77, 82, 83, 90, 92, 93, 99, 103, 105, 115

(ii) We know that

Range of these numbers = largest number – smallest number

So we get

$$= 115 - 52$$

$$= 63$$

2. Represent the following data in the form of a frequency distribution table :

16, 17, 21, 20, 16, 20, 16, 18, 17, 21, 17, 18, 19, 17, 15, 15, 19, 19, 18, 17, 17, 15, 15, 16, 17, 17, 19, 18, 17, 16, 15, 20, 16, 17, 19, 18, 19, 16, 21 and 17.

Solution:

The data can be represented in the form of a frequency distribution table as:

Numbers	Tally marks	Frequency
15	###	5
16	### II	7
17	### ### I	11
18	###	5
19	### I	6
20	III	3
21	III	3
Total		40

3. A die was thrown 20 times and following scores were recorded.

2, 1, 5, 2, 4, 3, 6, 1, 4, 2, 5, 1, 6, 2, 6, 3, 5, 4, 1 and 3.

Prepare a frequency table for the scores.

Solution:

The frequency table for the scores can be given as:

No. of thrown dies	Tally marks	Frequency
1	IIII	4
2	IIII	4
3	III	3
4	III	3
5	III	3

6		3
Total		20

4. Following data shows the weekly wages (in ₹) of 10 workers in a factory.
3500, 4250, 4000, 4250, 4000, 3750, 4750, 4000, 4250 and 4000

- (i) Prepare a frequency distribution table.
(ii) What is the range of wages (in ₹)?
(iii) How many workers are getting the maximum wages?

Solution:

(i) The frequency distribution table for weekly wages of 10 workers can be given as:

Weekly wages (in ₹)	Tally marks	Frequency
3500	I	1
3750	I	1
4000	IIII	4
4250	III	3
4750	I	1
Total		10

(ii) Range of wages = $4750 - 3500 = ₹ 1250$

(iii) One worker is getting the minimum wages.

5. The marks obtained by 40 students of a class are given below :

80, 10, 30, 70, 60, 50, 50, 40, 40, 20, 40, 90, 50, 30, 70, 10, 60, 50, 20, 70, 70, 30, 80, 40, 20, 80, 90, 50, 80, 60, 70, 40, 50, 60, 90, 60, 40, 40, 60 and 60

- (i) Construct a frequency distribution table.
(ii) Find how many students have marks equal to or more than 70?
(iii) How many students obtained marks below 40?

Solution:

(i) The frequency distribution tables is as given below:

Numbers	Tally marks	Frequency
10	II	2
20	III	3
30	III	3
40	### II	7
50	### I	6
60	### II	7
70	###	5
80	IIII	4
90	III	3
Total		40

(ii) Students having marks equal to or more than 70 = $5 + 4 + 3 = 12$

(iii) Students obtained marks below 40 = $2 + 3 + 3 = 8$ students

6. Arrange the following data in descending order:

3.3, 3.2, 3.1, 3.7, 3.6, 4.0, 3.5, 3.9, 3.8, 4.1, 3.5, 3.8, 3.7, 3.9 and 3.4.

(i) Determine the range.

(ii) How many numbers are less than 3.5?

(iii) How many numbers are 3.8 or above?

Solution:

We can write the given data in descending order

4.1, 4.0, 3.9, 3.9, 3.8, 3.7, 3.7, 3.6, 3.5, 3.5, 3.4, 3.3, 3.2, 3.1

(i) Range = $4.1 - 3.1 = 1.0$

(ii) Numbers less than 3.5 = 4

(3.4, 3.3, 3.2, 3.1)

(iii) Number are 3.8 or above = 6

(3.8, 3.8, 3.9, 3.9, 4.0, 4.1)