RD Sharma Solutions Class 10 Maths Chapter 7 Exercise 7.3: Chapter 7 of RD Sharma's Class 10 Maths book, which focuses on "Statistics," introduces methods to systematically organize and interpret data. Exercise 7.3 specifically covers the computation of cumulative frequency distributions, cumulative frequency curves (ogives), and their applications in analyzing grouped data.

Students learn how to convert data into cumulative frequencies, construct ogive graphs, and utilize these visuals to estimate median values. This exercise strengthens skills in understanding data distribution patterns and prepares students for practical applications of statistics. It emphasizes visualizing data trends, a fundamental aspect of real-world data analysis and interpretation.

RD Sharma Solutions Class 10 Maths Chapter 7 Exercise 7.3 Overview

Chapter 7 of RD Sharma's Class 10 Maths book covers Statistics, which is crucial for developing data interpretation skills. Exercise 7.3, in particular, focuses on calculating measures of central tendency, such as mean, median, and mode, which help summarize data into a single representative value.

These concepts are foundational for higher-level statistics and practical data analysis in various fields, including economics, science, and social studies. Understanding and practicing this exercise equips students with the skills to organize, interpret, and make informed conclusions from data, an essential competency in our data-driven world.

RD Sharma Solutions Class 10 Maths Chapter 7 Exercise 7.3 Statistics

Below is the RD Sharma Solutions Class 10 Maths Chapter 7 Exercise 7.3 Statistics -

1. The following table gives the distribution of total household expenditure (in rupees) of manual workers in a city.

Expenditure (in rupees) (x)	**Frequency (f_i)**	**Expenditure (in rupees) (x_i)**	**Frequency (f_i)**
100 – 150	**24**	**300 – 350**	**30**
150 – 200	**40**	**350 – 400**	**22**

200 – 250	**33**	**400 – 450**	**16**
250 – 300	**28**	**450 – 500**	**7**

Find the average expenditure (in rupees) per household.

Solution:

Let the assumed mean (A) = 275

Class interval	Mid value (x_i)	$d_i = x_i – 275$	$u_i = (x_i – 275)/50$	Frequency f_i	f_iu_i
100 – 150	125	-150	-3	24	-72
150 – 200	175	-100	-2	40	-80
200 – 250	225	-50	-1	33	-33
250 – 300	275	0	0	28	0
300 – 350	325	50	1	30	30
350 – 400	375	100	2	22	44
400 – 450	425	150	3	16	48
450 – 500	475	200	4	7	28
				N = 200	$\Sigma f_iu_i = -35$

It’s seen that A = 275 and h = 50

So,

Mean = A + h x ($\Sigma f_i u_i/N$)

= 275 + 50 (-35/200)

= 275 – 8.75

= 266.25

2. A survey was conducted by a group of students as a part of their environmental awareness program, in which they collected the following data regarding the number of plants in 200 houses in a locality. Find the mean number of plants per house.

Number of plants:	**0 – 2**	**2 – 4**	**4 – 6**	**6 – 8**	**8 – 10**	**10 – 12**	**12 – 14**
Number of house:	**1**	**2**	**1**	**5**	**6**	**2**	**3**

Which method did you use for finding the mean, and why?

Solution:

From the given data,

To find the class interval, we know that,

Class marks (x_i) = (upper class limit + lower class limit)/2

Now, let's compute x_i and f_ix_i by the following

Number of plants	Number of house (f_i)	x_i	f_ix_i
0 – 2	1	1	1
2 – 4	2	3	6
4 – 6	1	5	5
6 – 8	5	7	35
8 – 10	6	9	54
10 – 12	2	11	22
12 – 14	3	13	39
Total	N = 20		$\Sigma f_iu_i = 162$

Here,

Mean = $\Sigma f_iu_i / N$

= 162/ 20

= 8.1

Thus, the mean number of plants in a house is 8.1

We have used the direct method as the values of class mark x_i and f_i are very small.

3. Consider the following distribution of daily wages of workers of a factory

Daily wages (in ₹)	**100 – 120**	**120 – 140**	**140 – 160**	**160 – 180**	**180 – 200**
Number of workers:	**12**	**14**	**8**	**6**	**10**

Find the mean daily wages of the workers of the factory by using an appropriate method.

Solution:

Let the assume mean (A) = 150

Class interval	Mid value x_i	$d_i = x_i – 150$	$u_i = (x_i – 150)/20$	Frequency f_i	$f_i u_i$
100 – 120	110	-40	-2	12	-24
120 – 140	130	-20	-1	14	-14
140 – 160	150	0	0	8	0
160 – 180	170	20	1	6	6
180 – 200	190	40	2	10	20
				N= 50	$\Sigma f_i u_i = -12$

It's seen that,

A = 150 and h = 20

So,

Mean = A + h x ($\Sigma f_i u_i/N$)

= 150 + 20 x (-12/50)

= 150 – 24/5

= 150 = 4.8

= 145.20

4. Thirty women were examined in a hospital by a doctor and the number of heart beats per minute recorded and summarized as follows. Find the mean heart beats per minute for these women, choosing a suitable method.

Number of heart beats per minute:	65 – 68	68 – 71	71 – 74	74 – 77	77 – 80	80 – 83	83 – 86
Number of women:	**2**	**4**	**3**	**8**	**7**	**4**	**2**

Solution:

Using the relation (x_i) = (upper class limit + lower class limit)/ 2

And, class size of this data = 3

Let the assumed mean (A) = 75.5

So, let's calculate d_i, u_i, f_iu_i as follows:

Number of heart beats per minute	Number of women (f_i)	x_i	$d_i = x_i –$ 75.5	$u_i = (x_i –$ 755)/h	f_iu_i
65 – 68	2	66.5	-9	-3	-6
68 – 71	4	69.5	-6	-2	-8
71 – 74	3	72.5	-3	-1	-3
74 – 77	8	75.5	0	0	0
77 – 80	7	78.5	3	1	7
80 – 83	4	81.5	6	2	8
83 – 86	2	84.5	9	3	6
	N = 30				Σf_iu_i = 4

From the table, it's seen that

N = 30 and h = 3

So, the mean = A + h x ($\Sigma f_i u_i$/N)

= 75.5 + 3 x (4/30

= 75.5 + 2/5

= 75.9

Therefore, the mean heartbeats per minute for those women are 75.9 beats per minute.

Find the mean of each of the following frequency distributions: (5 – 14)

5.

Class interval:	**0 – 6**	**6 – 12**	**12 – 18**	**18 – 24**	**24 – 30**
Frequency:	**6**	**8**	**10**	**9**	**7**

Solution:

Let’s consider the assumed mean (A) = 15

Class interval	Mid – value x_i	$d_i = x_i – 15$	$u_i = (x_i – 15)/6$	f_i	f_iu_i
0 – 6	3	-12	-2	6	-12
6 – 12	9	-6	-1	8	-8
12 – 18	15	0	0	10	0
18 – 24	21	6	1	9	9
24 – 30	27	12	2	7	14
				N = 40	$\Sigma f_iu_i = 3$

From the table, it’s seen that,

A = 15 and h = 6

Mean = A + h x ($\Sigma f_i u_i$/N)

= 15 + 6 x (3/40)

= 15 + 0.45

= 15.45

6.

Class interval:	**50 – 70**	**70 – 90**	**90 – 110**	**110 – 130**	**130 – 150**	**150 – 170**
Frequency:	**18**	**12**	**13**	**27**	**8**	**22**

Solution:

Let's consider the assumed mean (A) = 100

Class interval	Mid – value x_i	$d_i = x_i – 100$	$u_i = (x_i – 100)/20$	f_i	f_iu_i
50 – 70	60	-40	-2	18	-36
70 – 90	80	-20	-1	12	-12
90 – 110	100	0	0	13	0
110 – 130	120	20	1	27	27
130 – 150	140	40	2	8	16
150 – 170	160	60	3	22	66
				N= 100	$\Sigma f_iu_i = 61$

From the table, it's seen that,

A = 100 and h = 20

Mean = A + h x ($\Sigma f_i u_i/N$)

= 100 + 20 x (61/100)

= 100 + 12.2

= 112.2

7.

Class interval:	**0 – 8**	**8 – 16**	**16 – 24**	**24 – 32**	**32 – 40**
Frequency:	**6**	**7**	**10**	**8**	**9**

Solution:

Let's consider the assumed mean (A) = 20

Class interval	Mid – value x_i	$d_i = x_i – 20$	$u_i = (x_i – 20)/8$	f_i	f_iu_i
0 – 8	4	-16	-2	6	-12
8 – 16	12	-8	-1	7	-7
16 – 24	20	0	0	10	0
24 – 32	28	8	1	8	8
32 – 40	36	16	2	9	18
				N = 40	$\Sigma f_iu_i = 7$

From the table, it's seen that,

A = 20 and h = 8

Mean = A + h x $(\Sigma f_i u_i/N)$

= 20 + 8 x (7/40)

= 20 + 1.4

= 21.4

8.

Class interval:	**0 – 6**	**6 – 12**	**12 – 18**	**18 – 24**	**24 – 30**
Frequency:	**7**	**5**	**10**	**12**	**6**

Solution:

Let's consider the assumed mean (A) = 15

Class interval	Mid – value x_i	$d_i = x_i – 15$	$u_i = (x_i – 15)/6$	f_i	f_iu_i
0 – 6	3	-12	-2	7	-14
6 – 12	9	-6	-1	5	-5
12 – 18	15	0	0	10	0

18 – 24	21	6	1	12	12
24 – 30	27	12	2	6	12
				N = 40	$\Sigma f_i u_i = 5$

From the table, it's seen that,

A = 15 and h = 6

Mean = A + h x ($\Sigma f_i u_i$/N)

= 15 + 6 x (5/40)

= 15 + 0.75

= 15.75

9.

Class interval:	**0 – 10**	**10 – 20**	**20 – 30**	**30 – 40**	**40 – 50**
Frequency:	**9**	**12**	**15**	**10**	**14**

Solution:

Let's consider the assumed mean (A) = 25

Class interval	Mid – value x_i	$d_i = x_i – 25$	$u_i = (x_i – 25)/10$	f_i	$f_i u_i$
0 – 10	5	-20	-2	9	-18
10 – 20	15	-10	-1	12	-12
20 – 30	25	0	0	15	0
30 – 40	35	10	1	10	10
40 – 50	45	20	2	14	28
				N = 60	$\Sigma f_i u_i = 8$

From the table, it's seen that,

A = 25 and h = 10

Mean = A + h x ($\Sigma f_i u_i$/N)

= 25 + 10 x (8/60)

= 25 + 4/3

= 79/3 = 26.333

10.

Class interval:	**0 – 8**	**8 – 16**	**16 – 24**	**24 – 32**	**32 – 40**
Frequency:	**5**	**9**	**10**	**8**	**8**

Solution:

Let's consider the assumed mean (A) = 20

Class interval	Mid – value x_i	$d_i = x_i – 20$	$u_i = (x_i – 20)/8$	f_i	f_iu_i
0 – 8	4	-16	-2	5	-10
8 – 16	12	-4	-1	9	-9
16 – 24	20	0	0	10	0
24 – 32	28	4	1	8	8
32 – 40	36	16	2	8	16
				N = 40	Σf_iu_i = 5

From the table, it's seen that,

A = 20 and h = 8

Mean = A + h x ($\Sigma f_i u_i$/N)

= 20 + 8 x (5/40)

= 20 + 1

= 21

11.

Class interval:	0 – 8	8 – 16	16 – 24	24 – 32	32 – 40
Frequency:	5	6	4	3	2

Solution:

Let's consider the assumed mean (A) = 20

Class interval	Mid – value x_i	$d_i = x_i - 20$	$u_i = (x_i - 20)/8$	f_i	f_iu_i
0 – 8	4	-16	-2	5	-12
8 – 16	12	-8	-1	6	-8
16 – 24	20	0	0	4	0
24 – 32	28	8	1	3	9
32 – 40	36	16	2	2	14
				N = 20	$\Sigma f_iu_i = -9$

From the table, it's seen that,

A = 20 and h = 8

Mean = A + h x $(\Sigma f_i u_i/N)$

= 20 + 6 x (-9/20)

= 20 – 72/20

= 20 – 3.6

= 16.4

12.

Class interval:	10 – 30	30 – 50	50 – 70	70 – 90	90 – 110	110 – 130
Frequency:	5	8	12	20	3	2

Solution:

Let's consider the assumed mean (A) = 60

Class interval	Mid – value x_i	$d_i = x_i - 60$	$u_i = (x_i - 60)/20$	f_i	f_iu_i
10 – 30	20	-40	-2	5	-10
30 – 50	40	-20	-1	8	-8
50 – 70	60	0	0	12	0
70 – 90	80	20	1	20	20
90 – 110	100	40	2	3	6
110 – 130	120	60	3	2	6
				N = 50	$\Sigma f_iu_i = 14$

From the table, it's seen that,

A = 60 and h = 20

Mean = A + h x $(\Sigma f_i u_i/N)$

= 60 + 20 x (14/50)

= 60 + 28/5

= 60 + 5.6

= 65.6

13.

Class interval:	**25 – 35**	**35 – 45**	**45 – 55**	**55 – 65**	**65 – 75**
Frequency:	**6**	**10**	**8**	**12**	**4**

Solution:

Let's consider the assumed mean (A) = 50

Class interval	Mid – value x_i	$d_i = x_i - 50$	$u_i = (x_i - 50)/10$	f_i	f_iu_i
25 – 35	30	-20	-2	6	-12
35 – 45	40	-10	-1	10	-10

45 – 55	50	0	0	8	0
55 – 65	60	10	1	12	12
65 – 75	70	20	2	4	8
				N = 40	$\Sigma f_i u_i = -2$

From the table, it's seen that,

A = 50 and h = 10

Mean = A + h x ($\Sigma f_i u_i / N$)

= 50 + 10 x (-2/40)

= 50 – 0.5

= 49.5

14.

Class interval:	**25 – 29**	**30 – 34**	**35 – 39**	**40 – 44**	**45 – 49**	**50 – 54**	**55 – 59**
Frequency:	**14**	**22**	**16**	**6**	**5**	**3**	**4**

Solution:

Let's consider the assumed mean (A) = 42

Class interval	Mid – value x_i	$d_i = x_i – 42$	$u_i = (x_i – 42)/5$	f_i	$f_i u_i$
25 – 29	27	-15	-3	14	-42
30 – 34	32	-10	-2	22	-44
35 – 39	37	-5	-1	16	-16
40 – 44	42	0	0	6	0
45 – 49	47	5	1	5	5
50 – 54	52	10	2	3	6
55 – 59	57	15	3	4	12

N = 70 $\Sigma f_i u_i$ = -79

From the table, it's seen that,

A = 42 and h = 5

Mean = A + h x ($\Sigma f_i u_i$/N)

= 42 + 5 x (-79/70)

= 42 – 79/14

= 42 – 5.643

= 36.357

Benefits of Solving RD Sharma Solutions Class 10 Maths Chapter 7 Exercise 7.3

Solving RD Sharma Solutions for Class 10 Maths Chapter 7 Exercise 7.3 on Statistics offers several benefits for students preparing for their exams. Here's how it helps:

1. **Strengthens Conceptual Understanding**

Exercise 7.3 focuses on the application of statistical measures, such as mean, median, and mode. Working through these solutions deepens the understanding of these fundamental statistical concepts and helps students remember the formulas and methods.

2. **Enhances Problem-Solving Skills**

The exercise includes various types of questions, allowing students to practice and strengthen their problem-solving abilities. By attempting diverse problems, students learn to apply the correct methods in a structured way.

3. **Builds Analytical Skills**

Solving statistics problems involves analyzing data and choosing appropriate techniques. This analytical approach to solving questions can benefit students not just in mathematics but in other subjects involving data interpretation as well.

4. **Improves Accuracy and Speed**

Regular practice with these solutions improves calculation accuracy and speeds up the time taken to solve problems, which is crucial in a timed exam setting. Consistency in solving RD Sharma exercises helps students become faster and more precise.

5. **Prepares for Competitive Exams**

This chapter is fundamental in many entrance exams and competitive tests. Understanding the basic statistical concepts here helps students prepare for exams beyond school, as they form the foundation for more advanced topics in statistics.