Exercise 24.2

Question 1: Calculate the mean for the following distribution:

x :	5	6	7	8	9
f :	4	8	14	11	3

Solution:

x	f	fx
5	4	20
6	8	48
7	14	98
8	11	88
9	3	27
	N=40	$\sum fx = 281$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= 281/40
= 7.025

=> Mean for the given distribution is 7.025.

Question 2: Find the mean of the following data:

x :	19	21	23	25	27	29	31
f :	13	15	16	18	16	15	13

Solution:

x	f	fx
19	13	247
21	15	315
23	16	368
25	18	450
27	16	432
29	15	435
31	13	403
	N=106	$\sum fx = 2650$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= 2650/106

= 25

=> Mean for the given data is 25.

Question 3: The mean of the following data is 20.6 .Find the value of p.

x :	10	15	p	25	35
f :	3	10	25	7	5

Solution:

x	f	fx
10	3	30
15	10	150
p	25	25p
25	7	175
35	5	175
N = 50		$\sum fx = 25p + 530$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= (25p + 530)/50

Mean = 20.6 (Given)

So,

20.6 = (25p + 530)/50

25p + 530 = 1030

25p = 1030 − 530 = 500

or p = 20

=> The value of p is 20.

Question 4: If the mean of the following data is 15, find p.

x :	5	10	15	20	25
f :	6	p	6	10	5

Solution:

x	f	fx
5	6	30
10	p	10p
15	6	90
20	10	200
25	5	125
N=p+27		$\sum fx = 10p + 445$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= (10p + 445)/(p + 27)

Mean = 15 (Given)

So, (10p + 445)/(p + 27) = 15

10p + 445 = 15(p + 27)

10p - 15p = 405 - 445 = -40

-5p = -40

or p = 8

=> The value of p is 8.

Question 5: Find the value of p for the following distribution whose mean is 16.6.

x :   8   12   15   p   20   25   30

f :   12   16   20   24   16   8   4

Solution:

x	f	fx
8	12	96
12	16	192
15	20	300
p	24	24p
20	16	320
25	8	200
30	4	120
N=100		$\sum fx = 24p + 1228$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= (24p + 1228)/100

Mean = 16.6 (given)

So, (24p + 1228)/100 = 16.6

24p + 1228 = 1660

24p = 1660 − 1228 = 432

p = 432/24 = 18

=> The value of p is 18.

Question 6: Find the missing value of p for the following distribution whose mean is 12.58.

x :	5	8	10	12	p	20	25
f :	2	5	8	22	7	4	2

Solution:

x	f	fx
5	2	10
8	5	40
10	8	80
12	22	264
p	7	7p
20	4	80
25	2	50
N = 50		$\sum fx = 7p + 524$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= (7p + 524)/50

Mean = 12.58 (given)

So, (7p + 524)/50 = 12.58

7p + 524 = 12.58 x 50

7p + 524 = 629

7p = 629 – 524 = 105

p = 105/7 = 15

=> The value of p is 15.

Question 7: Find the missing frequency (p) for the following distribution whose mean is 7.68.

x :	3	5	7	9	11	13
f :	6	8	15	p	8	4

Solution:

x	f	fx
3	6	18
5	8	40
7	15	105
9	p	9p
11	8	88
13	4	52
	N=p+41	$\sum fx = 9p + 303$

Formula to calculate mean:

$$Mean(\bar{x}) = \frac{\sum fx}{N}$$

= (9p + 303)/(p+41)

Mean = 7.68 (given)

So, (9p + 303)/(p+41) = 7.68

9p + 303 = 7.68 (p + 41)

9p + 303 = 7.68p + 314.88

9p – 7.68p = 314.88 – 303

1.32p = 11.88

or p = (11.881)/(1.32) = 9

=> The value of p is 9.