

25/09/2020

classmate

Date

Page

Ch - 15 Exercise 15.2

Q.1

x_i	f_i	$d_i = x_i - A$	$f_i d_i$
0	15	-4	-60
1	24	-3	-72
2	29	-2	-58
3	46	-1	-46
4 = A	54	0	0
5	43	1	43
6	39	2	78
$\Sigma f_i = 250$			$\Sigma f_i d_i = -115$

$$\begin{aligned}
 \text{Mean} &= A + \frac{\Sigma f_i d_i}{\Sigma f_i} \\
 &= 4 + \frac{(-115)}{250} \\
 &= 4 - \frac{23}{50} = 4 - 0.46 \\
 &= \boxed{3.54}
 \end{aligned}$$

Q.2

x_i	f_i	$d_i = x_i - a$	$f_i d_i$
0	38	-3	-114
1	144	-2	-288
2	342	-1	-342
3 = a	287	0	0
4	164	1	164
5	25	2	50
$\Sigma f_i = 1000$			$\Sigma f_i d_i = -530$

$$\begin{aligned}
 \text{Mean} &= a + \frac{\sum fidi}{\sum fi} \\
 &= 3 + \frac{(-530)}{1000} \\
 &= 3 - 0.530 = \boxed{2.47}
 \end{aligned}$$

Q.3

x_i	f_i	$d_i = x_i - a$	$fidi$
2	49	-2	-98
3	43	-1	-43
4 = a	57	0	0
5	38	1	38
6	13	2	26
	$\sum f_i = 200$		$\sum fidi = -77$

$$\begin{aligned}
 \text{Mean} &= a + \frac{\sum fidi}{\sum fi} \\
 &= 4 + \frac{(-77)}{200} = 4 - 0.385 \\
 &= \boxed{3.615}
 \end{aligned}$$

Q.4

x_i	f_i	$d_i = x_i - a$	$fidi$
0	10	-3	-30
1	21	-2	-42
2	55	-1	-55
3 = a	42	0	0
4	15	1	15
5	7	2	14
	$\sum f_i = 150$		$\sum fidi = -98$

$$\text{Mean} = a + \frac{\sum fidi}{\sum fi}$$

$$= 3 + \frac{(-98)}{150}$$

$$= 3 - 0.65 = \boxed{2.35}$$

Q.5

x_i	f_i	$d_i = x_i - a$	$f_i d_i$
15	5	-10	-50
20	8	-5	-40
22	11	-3	-33
24	20	-1	-20
25 = a	23	0	0
30	18	5	90
33	13	8	104
38	3	13	39
45	1	20	20
$\Sigma f_i = 102$			$\Sigma f_i d_i = 110$

$$\text{Mean} = a + \frac{\Sigma f_i d_i}{\Sigma f_i}$$

$$= 25 + \frac{110}{102} = 25 + 1.08$$

$$= \boxed{26.08}$$

Q.6

x_i	f_i	$d_i = x_i - a$	$f_i d_i$
0	1	-3	-3
1	4	-2	-8
2	10	-1	-10
3 = a	50	0	0
4	34	1	34
5	15	2	30
6	4	3	12
7	2	4	8
$\Sigma f_i = 120$			$\Sigma f_i d_i = 63$

$$\begin{aligned}
 \text{Mean} &= a + \frac{\sum fidi}{\sum fi} \\
 &= 3 + \frac{63}{120} = 3 + 0.525 \\
 &= \boxed{3.525}
 \end{aligned}$$

Q.7

x_i	f_i	$d_i = x_i - a$	$fidi$
0	154	-2	-308
1	95	-1	-95
2 = a	36	0	0
3	9	1	9
4	5	2	10
5	1	3	3
	$\sum f_i = 300$		$\sum fidi = -381$

$$\begin{aligned}
 \text{Mean} &= a + \frac{\sum fidi}{\sum fi} \\
 &= 2 + \frac{(-381)}{300} = 2 - \frac{381}{300} \\
 &= 2 - 1.27 = \boxed{0.73}
 \end{aligned}$$

Q.8

x_i	f_i	$d_i = x_i - a$	$fidi$
0	70	-2	-140
1	52	-1	-52
2 = a	34	0	0
3	3	1	3
4	1	2	2
	$\sum f_i = 160$		$\sum fidi = -187$

$$\text{Mean} = a + \frac{\sum fidi}{\sum fi}$$

$$= 2 + \frac{(-187)}{160}$$

$$= 2 - 1.16875 = \boxed{0.83125}$$

$$= 2 - 1.16875 = \boxed{0.83125}$$

Q.9

x_i	f_i	$d_i = x_i - a$	$f_i d_i$
5	15	-20	-300
10	50	-15	-750
15	80	-10	-800
20	76	-5	-380
25 = a	72	0	0
30	45	5	225
35	39	10	390
40	9	15	135
45	8	20	160
50	6	25	150
	$\Sigma f_i = 400$		$\Sigma f_i d_i = -1170$

$$\text{Mean} = a + \frac{\Sigma f_i d_i}{\Sigma f_i}$$

$$= 25 + \frac{(-1170)}{400}$$

$$= 25 - 2.925 = \boxed{22.075}$$