

mean = 13.86
 median = 15
 mode = 15

2 median = 13

3

x	f	fx	cf
65	1	65	1
66	4	264	5
67	5	335	10
68	7	476	17
69	11	759	28
70	10	700	38
71	6	426	44
72	4	288	48
73	2	146	50
	50	3459	

mean = $\frac{3459}{50} = 69.18$

median = 69

mode = 69

4

C-I	F	X	U	F*U
20-25	8	22.5	-4	-32
25-30	12	27.5	-3	-36
30-35	14	32.5	-2	-28
35-40	16	37.5	-1	-16
40-45	17	42.5	0	0
45-50	13	47.5	1	13
50-55	7	52.5	2	14
55-60	3	57.5	3	9
	90			-76

MEAN = $42.5 + \frac{5 * (-76)}{90} = 38.27778$

5

C-I	F	X	D	F*D
0-5	5	2.5	-20	-100
5-10	8	7.5	-15	-120
10-15	19	12.5	-10	-190
15-20	15	17.5	-5	-75
20-25	17	22.5	0	0
25-30	20	27.5	5	100
30-35	10	32.5	10	100
35-40	6	37.5	15	90
	100			-195

MEAN = $22.5 + \frac{(-195)}{100} = 20.55$

6

C-I	F	X	U	F*U
0-10	7	5	-5	-35
10-20	8	15	-4	-32
20-30	11	25	-3	-33
30-40	14	35	-2	-28
40-50	16	45	-1	-16
50-60	10	55	0	0
60-70	12	65	1	12
70-80	9	75	2	18
80-90	7	85	3	21
90-100	6	95	4	24
	100			-69

$$\text{MEAN} = 55 + \frac{10 * (-69)}{100} = 48.1$$

7

X	F	FX
13	8	104
15	2	30
17	3	51
19	4	76
20+P	5P	5P(20+P)
23	6	138
	23+5P	399+5P(20+P)

$$\frac{399 + 5p(20 + p)}{23 + 5p} = 18$$

$$P = 1$$

8

$$\text{MODE} = l + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} = 40 + \frac{14 - 12}{2 * 14 - 12 - 10} * 10 = 43.33$$

9

x	f	fx
5	4	20
7	4	28
9	4	36
11	7	77
p	3	3p
15	2	30
20	1	20
	25	211+3p

$$\frac{211 + 3p}{25} = 10$$

$$p = 13$$

10

CI	F	X	FX
11-13	3	12	36
13-15	6	14	84
15-17	9	16	144
17-19	13	18	234
19-21	P	20	20P
21-23	5	22	110
23-25	4	24	96
	40+P		704+20P

$$\frac{704 + 20p}{40 + P} = 18$$

$$P = 8$$

11

CI	F	CF
0-10	5	5
10-20	9	14
20-30	16	30
30-40	22	52
40-50	26	78
50-60	18	96
60-70	11	107
70-80	6	113
80-90	4	117
90-100	3	120

i) MEDIAN = 43.1

ii)

12

CI	F	CF
40-45	5	5
45-50	17	22
50-55	22	44
55-60	45	89
60-65	51	140
65-70	31	171
70-75	20	191
75-80	9	200

iii) median = 61.1

iv) 78