



### Exercise 9A

Question 15:

We have  $h = 4$  and let assumed mean be  $A = 26$ . We have the table given below:

Marks	Frequency $f_i$	Mid value $x_i$	$u_i = \left( \frac{x_i - A}{h} \right)$	$(f_i \times u_i)$
4 - 8	2	6	-5	-10
8 - 12	12	10	-4	-48
12 - 16	15	14	-3	-45
16 - 20	25	18	-2	-50
20 - 24	18	22	-1	-18
24 - 28	12	26 = A	0	0
28 - 32	13	30	1	13
32 - 36	3	34	2	6
	$\sum f_i = 100$			$\sum (f_i \times u_i) = -152$

$A = 26, h = 4, \sum f_i = 100$  and  $\sum (f_i \times u_i) = -152$

$$\begin{aligned}
 \bar{x} &= A + \left[ h \times \frac{\sum (f_i \times u_i)}{\sum f_i} \right] \\
 &= 26 + \left[ 4 \times \frac{-152}{100} \right] \\
 &= 26 - \frac{152}{25} = (26 - 6.08) = 19.92
 \end{aligned}$$

Hence the mean of given frequency distribution is 19.92.

Question 16:

We have  $h = 30$  and let  $A = 75$  be the assumed mean. we have the table given below:

Marks	Frequency $f_i$	Mid value $x_i$	$u_i = \left( \frac{x_i - A}{h} \right)$	$(f_i \times u_i)$
0 - 30	12	14	-2	-24
30 - 60	21	45	-1	-21
60 - 90	34	75 = A	0	0
90 - 120	52	105	1	52
120 - 150	20	135	2	40
150 - 180	11	165	3	33
	$\sum f_i = 150$			$\sum (f_i \times u_i) = 80$

Thus,  $A = 75$ ,  $h = 30$ ,  $\sum f_i = 150$  and  $\sum (f_i \times u_i) = 80$

$$\begin{aligned}
 \text{Mean, } \bar{x} &= A + \left[ h \times \frac{\sum (f_i \times u_i)}{\sum f_i} \right] \\
 &= 75 + \left( 30 \times \frac{80}{150} \right) \\
 &= 75 + 16 = 91
 \end{aligned}$$

Hence, the mean of the given frequency distribution is 91.

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