



Exercise 9A

Question 13:

Let $A = 50$ be the assumed mean, we have

Marks	Frequency f_i	Mid value x_i	Deviation $d_i = (x_i - 50)$	$f_i \times d_i$
0 - 20	20	10	-40	-800
20 - 40	35	30	-20	-700
40 - 60	52	50 = A	0	0
60 - 80	44	70	20	880
80 - 100	38	90	40	1520
100 - 120	31	110	60	1860
	$\Sigma f_i = 220$			$\Sigma f_i \times d_i = 2760$

$$\begin{aligned}
 \therefore \bar{x} &= A + \frac{\Sigma (f_i \times d_i)}{\Sigma f_i} \\
 &= 50 + \frac{2760}{220} \\
 &= 50 + 12.55 \\
 &= 62.55
 \end{aligned}$$

Question 14:

Marks	Frequency f_i	Mid value x_i	$u_i = \left(\frac{x_i - A}{h} \right)$	$(f_i \times u_i)$
0 - 10	12	5	-2	-24
10 - 20	18	15	-1	-18
20 - 30	27	25 = A	0	0
30 - 40	20	35	1	20
40 - 50	17	45	2	34
50 - 60	6	55	3	18
	$\Sigma f_i = 100$			$\Sigma (f_i \times u_i) = 30$

We have $h = 10$ and let assumed mean = 25.

$$A = 25, h = 10, \Sigma f_i = 100 \text{ and } \Sigma (f_i \times u_i) = 30$$

$$\begin{aligned}
 \text{Mean, } \bar{x} &= A + \left[h \times \frac{\Sigma (f_i \times u_i)}{\Sigma f_i} \right] \\
 &= 25 + \left(10 \times \frac{30}{100} \right) = 25 + 3 = 28
 \end{aligned}$$

Hence the mean of given frequency distribution is 28.

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