



Exercise 9A

Question 9:

We have

$$7 + f_1 + 12 + f_2 + 8 + 5 = 50$$

$$\Rightarrow f_2 = 18 - f_1$$

| Class | Frequency f_i | Mid Value x_i | $f_i x_i$ |
|-----------|--------------------|--------------------|----------------------------------|
| 0 - 20 | 7 | 10 | 70 |
| 20 - 40 | f_1 | 30 | $30 f_1$ |
| 40 - 60 | 12 | 50 | 600 |
| 60 - 80 | $f_2 = 18 - f_1$ | 70 | $1260 - 70 f_1$ |
| 80 - 100 | 8 | 90 | 720 |
| 100 - 120 | 5 | 110 | 550 |
| | $\Sigma f_i = 50$ | | $\Sigma f_i x_i = 3200 - 40 f_1$ |

$$\therefore \text{Mean, } \bar{x} = \frac{\Sigma (f_i \times x_i)}{\Sigma f_i} = \frac{3200 - 40 f_1}{50} = 57.6$$

$$\Rightarrow 3200 - 40 f_1 = 2880 \Rightarrow 40 f_1 = 320$$

$$\Rightarrow f_1 = 8$$

$$\text{Thus, } f_1 = 8 \text{ and } f_2 = (18 - 8) = 10$$

Question 10:

We have, Let A = 25 be the assumed mean

| Marks | Frequency f_i | Mid value x_i | Deviation $d_i = (x_i - 25)$ | $(f_i \times d_i)$ |
|---------|--------------------|--------------------|---------------------------------|---------------------------------|
| 0 - 10 | 12 | 5 | -20 | -240 |
| 10 - 20 | 18 | 15 | -10 | -180 |
| 20 - 30 | 27 | 25 = A | 0 | 0 |
| 30 - 40 | 20 | 35 | 10 | 200 |
| 40 - 50 | 17 | 45 | 20 | 340 |
| 50 - 60 | 6 | 55 | 30 | 180 |
| | $\Sigma f_i = 100$ | | | $\Sigma (f_i \times d_i) = 300$ |

$$\bar{x} = A + \frac{\Sigma (f_i \times x_i)}{\Sigma f_i} = \left(25 + \frac{300}{100} \right) = (25 + 3) = 28$$

Hence mean = 28

***** END *****