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
	$\sum f_i = 50$		$\sum f_i x_i = 3200 - 40 f_1$

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

$\Rightarrow 3200 - 40 f_1 = 2880 \Rightarrow 40 f_1 = 320$
$\Rightarrow \qquad f_1 = 8$
Thus, $f_1 = 8$ 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 *********