

Exercise 9D

Question 5:

Class	Frequency f	Mid-value	$u_i = \left(\frac{x_i - A}{h}\right)$	fjui	C.F.
		×i			
100-150	6	125	-2	-12	6
150-200	7	175	-1	-7	13
200-250	12	225	0	0	25
250-300	3	275	1	3	28
300-350	2	325	2	4	30
	N = 30			$\sum f_i u_i = -12$	

Let assumed mean = 225 and h = 50

(i) Mean = A +
$$h\left(\frac{\sum f_i L_i}{N}\right)$$
 = 225 + 50 $\left(\frac{-12}{30}\right)$ = 225 - 20 = 205

(ii)
$$\frac{N}{2} = \frac{30}{2} = 15$$

Cumulative frequency just after 15 is 25

- corresponding class interval is 200 250
- Median class is 200 250

Cumulative frequency c just before this class = 13

So,
$$I = 200$$
, $f = 12$, $\frac{N}{2} = 15$, $h = 50$, $c = 13$

: Median = I + h
$$\left(\frac{\frac{N}{2} - c}{f}\right)$$
 = 200 + 50 $\left(\frac{15 - 13}{12}\right)$
= 200 + $\frac{50 \times 2}{12}$ = 200 + $\frac{25}{3}$ = 200 + 8.33 = 208.33

Hence, Mean = 205 and Median = 208.33

******* END *******