



NCERT Maths Class X-Statistics Ex 14.3 - Question 1

Solutions by Dev Anoop (Bathinda)

Monthly consumption (in units)

No. of consumers f_i

class Marks x_i

$U_i = \frac{x_i - a}{h}$
 $f_i U_i$

65-85	4	4	75	-3	-12
85-105	5	9	95	-2	-10
105-125	f_0 13	22	115	-1	-13
<u>125-145</u>	f_1 20	42	135 = a	0	0
145-165	f_2 14	56	155	1	14
165-185	8	64	175	2	16
185-205	4	68	195	3	12
					<u>7</u>

Modal class 125-145, $l = 125$, $h = 20$

$$\text{Mode} = l + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times h$$

$$= 125 + \frac{20 - 13}{40 - 13 - 14} \times 20 \quad \left| \begin{array}{l} = 125 + 10.77 \\ = 135.77 \end{array} \right.$$

$$\frac{N}{2} = \frac{68}{2} = 34$$

\therefore Median class 125-145
 $l = 125$, $h = 20$

$$\text{Median} = l + \frac{\frac{N}{2} - cf}{f} \times h$$

$$= 125 + \frac{34 - 22}{20} \times 20$$

$$= 125 + 12$$

$$= 137$$

$$\text{Mean} = a + \frac{\sum f_i x_i}{\sum f_i} \times h \quad \left| \begin{array}{l} = 137.06 \\ = 135 + \frac{7}{\frac{68}{17}} \times 20 \\ = 135 + 2.06 \end{array} \right.$$