



Exercise 9A

Question 21:

We have $h = 6$ and let assumed mean $A = 99$. For calculating the mean we prepare the table:

Class	f_i	x_i	$u_i = \left(\frac{x_i - A}{h} \right) = \left(\frac{x_i - 99}{6} \right)$	$(f_i \times u_i)$
84 - 90	15	87	-2	-30
90 - 96	22	93	-1	-22
96 - 102	20	99 = A	0	0
102 - 108	18	105	1	18
108 - 114	20	111	2	40
114 - 120	25	117	3	75
	$\sum f_i = 120$			$\sum (f_i \times u_i) = 81$

Thus, $A = 99$, $h = 6$ and $\sum f_i = 120$, $\sum (f_i \times u_i) = 81$

$$\begin{aligned} \therefore \text{Mean, } \bar{x} &= A + \left[h \times \frac{\sum (f_i \times u_i)}{\sum f_i} \right] \\ &= 99 + \left(6 \times \frac{81}{120} \right) = 103.05 \end{aligned}$$

Hence, Mean = 103.05

Question 22:

Let $h = 20$ and assume mean = 550, we prepare the table given below:

Age	Frequency f_i	Mid value x_i	$u_i = \left(\frac{x_i - 550}{20} \right)$	$(f_i \times u_i)$
500 - 520	14	510	-2	-27
520 - 540	9	530	-1	-9
540 - 560	5	550 = A	0	0
560 - 580	4	570	1	4
580 - 600	3	590	2	6
600 - 620	5	610	3	15
	$\sum f_i = 40$			$\sum (f_i \times u_i) = -12$

Thus, $A = 550$, $h = 20$, and $\sum f_i = 40$, $\sum (f_i \times u_i) = -12$

$$\begin{aligned} \therefore \text{Mean, } \bar{x} &= A + \left[h \times \frac{\sum (f_i \times u_i)}{\sum f_i} \right] \\ &= 550 + \left(20 \times \frac{-12}{40} \right) \\ &= 550 - 6 = 544 \end{aligned}$$

Hence the mean of the frequency distribution is 544

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