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P#1

Q No. 1

class	Tally	F(x)	CF(x)
360-369		2	2
370-379		3	5
380-389		5	10
390-399		7	17
400-409		8	22
410-419		4	26
420-429		3	29
430-439		1	30

30

The lowest and highest value are 363, 431 for the given data, and choosing a class interval of 10 the first class interval should be 360-369 to include 363. There should be enough class intervals until the highest value has been included.

Q No. 2.

P#2.

class	X	F	Fx
360-369	364.5	2	729
370-379	374.5	3	1123.5
380-389	384.5	5	1922.5
390-399	394.5	7	2761.5
400-409	404.5	5	2022.5
410-419	414.5	4	1658
420-429	424.5	3	1273.5
430-439	434.5	1	434.5
		30.	11925

$$\frac{Fx}{F} = \frac{11925}{30} = 397.5 \text{ - Mean.}$$

$$\bar{x} = \frac{\sum_{i=1}^n f_i x_i}{\sum_{i=1}^n f_i}$$

$$G = \text{antilog} \left\{ \frac{1}{n} \sum f_i \log x_i \right\}$$

Q No-2. Geometric Mean.

P#3.

x_i	$\log x_i$	$F \log x$
364.5	2.56	5.12
374.5	2.57	7.71
384.5	2.58	12.9
394.5	2.59	18.13
404.5	2.60	13
414.5	2.61	10.44
424.5	2.62	7.86
434.5	2.63	2.63

$$G = \text{antilog} \left(\frac{1}{n} \sum f \log x \right)$$

$$G = \text{antilog} \left(\frac{1}{30} (77) \right)$$

$$G = \text{antilog} (2.593)$$

Q.No. 3. Sample and Population.

The term "population" is used in statistics to represent all possible measurements or outcomes that are of interest to us in a particular study.

While the term "sample" refers to a portion of the population that is representative of the population from which it was selected.

In order to use statistics to learn something about a population, the sample must be random. A random sample is one in which every member of a population has an equal chance of being selected.

PH 5

Q NO-3 (C). Weighted Arithmetic Mean

The weighted Arithmetic mean denoted by \bar{X}_w of a set of n values $X_1, X_2, X_3, \dots, X_n$ with corresponding weights $w_1, w_2, w_3, \dots, w_n$ is defined

$$\bar{X}_w = \frac{X_1 w_1 + X_2 w_2 + \dots + X_n w_n}{w_1 + w_2 + \dots + w_n}$$

$$= \frac{\sum X_i w_i}{\sum w_i} \quad (i = 1, 2, 3, 4, \dots, n)$$

Example:

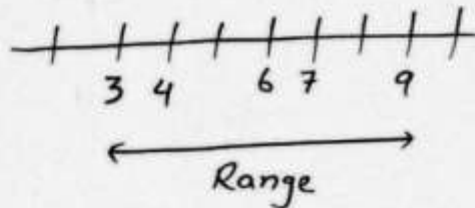
Item	X_i	Weight (w_i)	$X_i w_i$
Food	290	7.5	2175.0
Rent	54	2.0	108.0
Colthi	98	1.5	147.0
Fuel	75	1.0	75.0
other	75	0.5	37.5
Total		12.5	2542.5

Now $\frac{\sum X_i w_i}{\sum w_i} = \frac{2542.5}{12.5}$

$\bar{X}_w = 203.4$

Q103 (b) Range.

The difference between the lowest and highest values.



In $\{4, 6, 9, 3, 7\}$ the lowest value is 3 and the highest is 9. So the range is $9 - 3 = 6$.

Range can also mean all the output values of a function.