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Probility & Stats.

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BS-SE 07

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Q1 Grouped frequency distribution table and cumulative frequency curve

i) Sample size = $n = 30$

ii) No of classes = $k = 2^k$

k	2^k
1	2
2	4
3	8
4	16
k → 5	32
6	64
7	128
⋮	⋮

Rg # 2.

③ calculate class ~~interval~~ width.

$$\text{class width} = \frac{\text{Range} + 1}{k}$$

$$\text{Range} = 428 - 363$$

$$= 65$$

$$\text{width} = \frac{65+1}{5}$$

$$\text{class width} \cong 13$$

Observation	freq	cumulative freq	Midpoint	f.m	log x
363 — 376	4	4	369.5	1478	2.56
376 — 389	6	16	382.5	2295	2.58
389 — 402	9	19	395.5	3559.5	2.59
402 — 415	6	25	408.5	2451	2.61
415 — 428	5	30	421.5	2107.5	2.62
	$\Sigma f = 30$			$\Sigma fm = 11891$	

f. log x
10.24
15.48
23.31
15.66
13.1
77.79

Geometric Mean

$$G = \text{antilog } \frac{1}{n} \sum_{i=1}^{n} f_i \log x_i$$

$$= \text{antilog } \left[\frac{77.79}{30}\right]$$

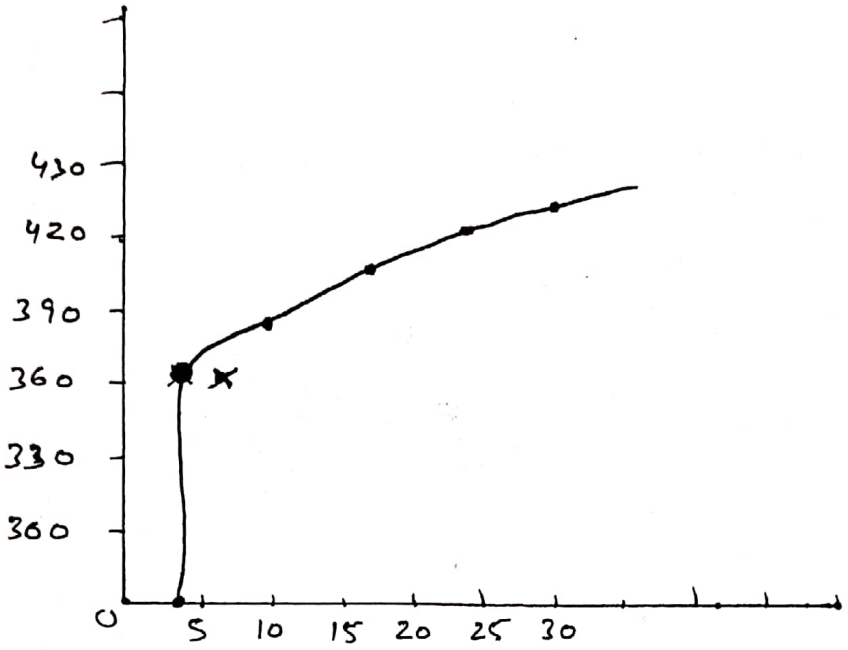
$$= \text{antilog } [2.593]$$

$$G = 391.74$$

$$\text{Mean } \bar{X} = \frac{\Sigma [f.m]}{\Sigma f}$$

$$= 396.33$$

Ogive:-



plotting points:-

x	y
~~4, 0~~ 0	4
376	4
389	10
402	19
415	25
428	30

Q3 Define following:-

Population:-

A population is the entire pool from which a statistical sample is drawn. A population may refer to an entire group of people, object events e.t.c or measurements. A population can be said to be an aggregated observations of subjects grouped together by a common feature.

Sample:-

A sample refers to a smaller manageable version of a larger group. It is a subset of larger population which containing the characteristics of a larger population. Samples are used in statistical testing when population sizes are too big.

Range:-

The difference between the highest and lowest value in a particular set of numerical values are called range. Ranges can be sometimes misleading.

The weighted arthimatic mean

The weighted arthimatic mean is similar to simple arithematic mean, the most common type of average, except that instead of each of the data point contributing equally to that of the final average, but some point contributes more than others.