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2022-99-2438

Assignment No. 1

Name :-   SALMA Bibi

QNO#1

3 - Sum.

Shown N distinct integers. How many Triples Sum To exactly Zeror

Solution:-

Empirical Analysis:-

N	Time (Seconds)
1000	0.3
2000	1.7
4,000	12.9
8,000	116.7

Data Analysis:-

Standard Plot:-

Plot running time T(N) vs input Size (N).
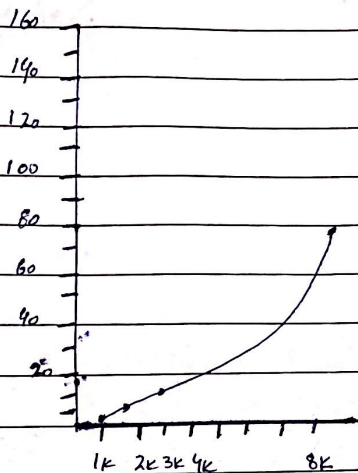
Log-Log Plot:-
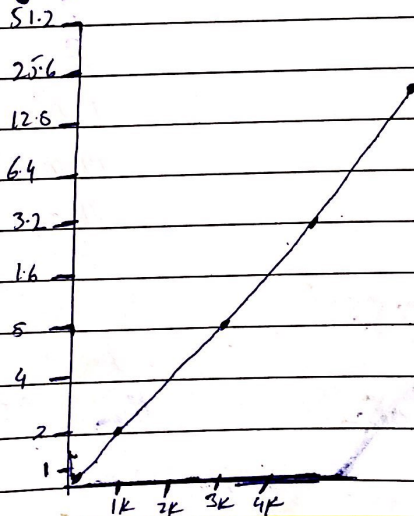
Hafiz

$$lg\,(T(N)) = b\,lg\,N + c$$

$$b = 3.1$$

$$c = 33.201$$

$$T(N) = a\,N^b$$

Hypothesis:-

$$1.006 \times 10^{-10} \times N^3$$

Doubling Hypothesis:-

Run program, doubling the Size of the point:-

N	Time (second) T	Ratio	lg ratio
1000	0.3	5.6	2.48
2000	1.7	7.58	2.92
4000	12.9	8.58	3.10
8000	110.7	8.6	3.10