Data Anaylsis :

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|   |   | T (days) | T (s) | R (J.D.) | R (m) | T^2 (s^2) | R^3 (m^3) |
| IO |   | 1.9 | 164160 | 2.88 | 411840000 | 2.69E+10 | 6.99E+25 |
| EUROPA |   | 3.6 | 311040 | 4.75 | 679250000 | 9.67E+10 | 3.13E+26 |
| GANYMEDE | 7.3 | 630720 | 7.49 | 1071070000 | 3.98E+11 | 1.23E+27 |
| CALLISTO |   | 17 | 1468800 | 13.08 | 1870440000 | 2.16E+12 | 6.54E+27 |
|   |   |   |   |   |   |   |   |

Slope of line = 3E15

R^3 = ((GM)/(4π^2)) x T^2 M = Mass of Jupiter

Slope = GM/4π^2

3E15 = GM/4π^2

M = 3E15 x 4π^2/G

M = 1.775E27 kg M (actual) = 1.8986E27

1. % Error = 1.775E27 – 1.8986E27/ 1.8986E27 x 100 = -6.51%





