Provincial Department of Education – Sabaragamuwa – Week School

Week: - 24

Subject: Mathematics

Translated by: Ms. Dematage
Kg/Dehi Royal College

Grade -10

Grade 10-Lesson 20-Logarithm II

❖ **Since logarithms table prepared in base 10, it is expressed as follows**

$Log_{10}N = lgN$

❖ **Finding the logarithm of numbers between 1 to 10**

	0	1	2	3	4	5	6	7	8	9
1.0	.0000	.0043	.0086	.0128	.0170	.0212	.0253	.0294	.0334	.0374
1.1	.0414	.0453	.0492	.0531	.0569	.0607	.0645	.0682	.0719	.0755
1.2	.0792	.0828	.0864	.0899	.0934	.0969	.1004	.1038	.1072	.1106
1.3	.1139	.1173	.1206	.1239	.1271	.1303	.1335	.1367	.1399	.1430
1.4	.1461	.1492	.1523	.1553	.1584	.1614	.1644	.1673	.1703	.1732
1.5	.1761	.1790	.1818	.1847	.1875	.1903	.1931	.1959	.1987	.2014
1.6	.2041	.2068	.2095	.2122	.2148	.2175	.2201	.2227	.2253	.2279
1.7	.2304	.2330	.2355	.2380	.2405	.2430	.2455	.2480	.2504	.2529
1.8	.2553	.2577	.2601	.2625	.2648	.2672	.2695	.2718	.2742	.2765
1.9	.2788	.2810	.2833	.2856	.2878	.2900	.2923	.2945	.2967	.2989
2.0	.3010	.3032	.3054	.3075	.3096	.3118	.3139	.3160	.3181	.3201

Initial two digits of the number which should find the logarithm.

Logarithm of the number with three digits

Examples

1. $lg1.2 = 0.0792$ II. $lg1.57 = 0.1959$

- Do the exercise 20.1 in the text book

❖ **Logarithm of number with 4 digits**

	0	1	2	3	4	5	6	7	8	9	මධ්‍ය අන්තර කිරුළ 1	2	3	4	5	6	7	8	9
18	2553	2577	2601	2625	2648	2672	2695	2718	2742	2765	2	5	7	9	12	14	16	19	21
19	2788	2810	2833	2856	2878	2900	2923	2945	2967	2989	2	4	7	9	11	13	16	18	20
20	3010	3032	3054	3075	3096	3118	3139	3160	3181	3201	2	4	6	8	11	13	15	17	19
21	3222	3243	3263	3284	3304	3324	3345	3365	3385	3404	2	4	6	8	10	12	14	16	18

Example

$\lg 1.932 = 0.2860 \rightarrow (2856 + 4 = 2860)$

- Here, seeing the value of 19th raw of 3rd column, the answer will be taken by adding the mean difference of second column
- When finding the logarithm of any number greater than 10, It should first be written as product of a number between 1 and 10 and a power of 10. Then, this power of ten is the characteristic of the logarithm of the number.

1. $lg21.12 = 1.3247$ II. $lg1854 = 3.2681$

- Do the exercises 20.2 and 20.3 in the text book.

❖ **Antilogarithm**

Example-1

$\lg 1.39 = 0.1430$

$Antilog\ 0.1430 = 1.39$

- Do the exercise 20.4 in the text book.

❖ **Simplification using logarithmic table**

Example

Find the value of $\frac{29.3\times6.285}{12.34}$

$$\lg\left(\frac{29.3\times6.285}{12.34}\right)=\lg(29.3\times6.825)-lg12.34$$

$$=lg29.3+lg6.285-lg1234$$

$$=1.4669+0.7983+1.0913$$

$$=1.1739$$

$$\frac{29.3\times6.285}{12.34}=\text{antilog}(1.1739)=14.92$$

- Do the exercises 20.5, 20.6 and miscellaneous exercise in the text book.