Интегрированный урок математики и английского языка «Логарифмы».

FAMOUS MATHEMATICIANS-THE FOUNDERS OF LOGARITHM THEORY

ЛОГАРИФМЫ

Logarithms

Регистрационный листок

№ п/п	Список учащихся	Определение логарифма	Устный счет	«Паук»	Работа со словами	Работа с текстом	Самостоятельная работа

$$\log_a b = c \qquad a^c = b$$

$$a > 0, a \neq 1$$

$$a^{\log_a b} = b$$

Свойства логарифмов

1. $p \log_a b =$

2. $\log_{a^n} b =$

3. $\log_{a^n} b^m =$

4. $\log_c a + \log_c b =$

5. $\log_c a - \log_c b =$

6. $\log_m a \cdot \log_n b =$

7. $\dfrac{1}{\log_b a} =$

8. $\dfrac{\log_b c}{\log_b a} =$

а) $\log_c \dfrac{a}{b}$

б) $\log_a b$

в) $\log_a b^p$

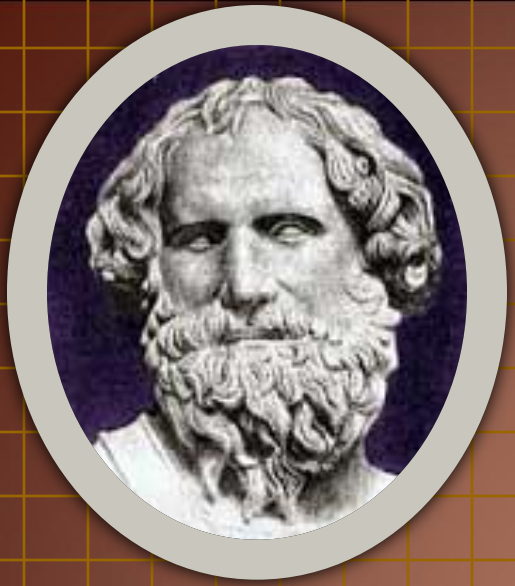
г) $\dfrac{m}{n} \log_a b$

д) $\log_a c$

е) $\dfrac{1}{n} \log_a b$

ж) $\log_c ab$

з) $\log_n a \cdot \log_m b$



Немецкий математик, один из изобретателей логарифмов


натуральный
показатель
логарифм
основание
десятичный
тождество
natural
logarithm
decimal
base
identity
index

Stage → a place for a performance ☐
Stage → a period of time ◉

Number → a figure 1,2,3,4,……. ◉
Number → a lot of something ☐

Operation → the process of person's treatment ☐
Operation → rules in Maths (division, multiplication) ◉

Power → an ability to control something ☐
Power → mathematical operations (4^2 , 5^3 , 8^7 , 21^4…) ◉

Table → a piece of furniture ☐
Table → a list of numbers arranged in special order ◉

- **Group No.1**-read the text and while reading find in the text and underline mathematical terms.
- **Group No.2**-read the text and while reading choose the key sentences. Be ready to read them aloud.
- **Group No.3**-read the text and answer the questions:

- How many stages of development does logarithmic function have?
- Whose names do these stages connect?

These three world famous scientists contributed significantly to many fields and discovered several important concepts including logarithmic function which has several stages of its development.

The word logarithm comes from Greece words "Ιογοφ"(means number) and " apIvuoф" (means ratio = отношение).

The basic principles of any logarithmic system has been known since ancient times even in ancient Maths of Babylon (about 2000 years BC). Later Archimedes used the power (степень) of a number 10^3 in his calculations.

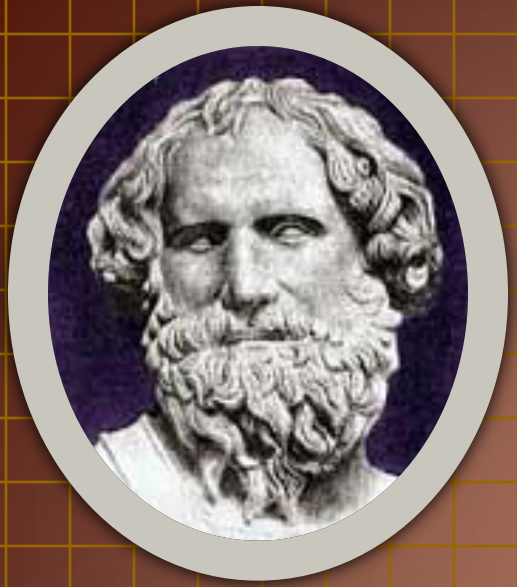
In the Middle Ages M.Shtiffel (1544) made four basic rules which are equivalents of four modern rules of logarithmic operations.

But the first formal system of logarithms was introduced by John Napier a famous English mathematician. He chose the term "logarithm" because it was used when two numbers were compared (сопоставлять). One of these numbers was a term of arithmetic progression, while the second – of geometric progression.

The first logarithm table was also invented by J. Napier. The main idea of logarithm table was as follows: each number had its own special number – logarithm which made division and multiplication much easier. He also invented the first slide-ruler. It was used as a means of calculations till 1970.

The inventors of logarithms calculated them by different methods but the idea was the same: to make the process of calculations easier.

- logarithmic function
- logarithm
- power
- numbers
- arithmetic progression
- geometric progression
- logarithm table
- slide-ruler



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Упражнения для самостоятельной работы

1 группа

1. $\log_4 2 + \log_4 8.$ **2**
2. $\log_3 2 - \log_3 54.$ **-3**
3. $\log_2 5 - \log_2 35 + \log_2 56.$ **3**

2 группа

1. $\log_2 5 + \log_2 \frac{8}{5}.$ **3**
2. $\log_3 8 + 3\log_3 \frac{9}{2}.$ **6**
3. $2\log_2 6 + \log_2 \frac{35}{9} - \log_2 35.$ **2**

3 группа

1. $10^{\lg 2 + \lg 3}.$ **6**
2. $\log_5 128 \cdot \log_2 \frac{1}{125}$ **-21**
3. $\log_3 (\log_2 5 \cdot \log_5 8)$ **1**

Home task

- English:
  - 1.Write down the words (not less than ten)
  - 2. Make up sentences (not less than five)
- Maths: №293, №296