Logarithm Description

July 19, 2019

1 Introduction

The logarithm in mathematics is the reverse or inverse of another function. We can find logarithm of a number x that is it is the exponent of the number b which produces x. For instance if we take $Log_b(x)$ then the "logarithm to base 10" of 1000 is 3. So here b is base. When b=10 it is a common logarithm. In programming we can use logarithmic exponents because it simplifies complex mathematical calculations. Computer developers use logarithms in computer function formulas to create specific software program outcomes, such as the creation of graphs that compare statistical data.

$$Log_{10}(1000) = 3 \tag{1}$$

2 Domain and Range

The domain of the logarithmic function y=logbx is the set of positive real numbers and the range is the set of real numbers. Domain : $(0, \infty)$ Range: $(-\infty, \infty)$

3 Rules

Logarithms are commonplace in scientific formulae, and in measurements of the complexity of algorithms and of geometric objects called fractals.

- Product: $\log_b(xy) = log_b(x) + log_b(y)$

- Ratios: $\log_b(x/y) = log_b(x) - log_b(y)$

- Power: $\log_b(xy) = ylog_b(x)$

4 References

[1]"Logarithm", En.wikipedia.org, 2019. [Online]. Available: https://en.wikipedia.org/wiki/Logarithm. [Accessed: 06- Jul- 2019].
Techwalla, 2019. [Online]. Available: https://www.techwalla.com/articles/uses-of-logarithms-in-computers. [Accessed: 06- Jul- 2019].