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What is a Continuous Function?

When in a function, the real value at a point is said to be continuous when at that point, the function of that point is equal to the limit of the function at that point. The continuity exists when all of the domain is continuous.

The difference, product, and quotient are continuous when it comes to continuous function. Let's understand with the help of an example.

(f±g)(x)=f(x)±g(x) is said to be continuous.
(f.g)(x)=f(x).g(x) is again said to be continous.

(f/g)(x)=f(x)/g(x) and g(x) ≠ 0 and is said to be continous.
All the functions which are differential are said to be continuous but the vice versa is not true.

Chain Rule

The composite of the functions can be differentiated with the help of chain rule. If f=v, t=u(x)

Then the existence of $\partial t \partial x$ and $\partial v \partial x$ can be witnessed, then, $\partial f \partial x = \partial v \partial t . \partial t \partial x$

Logarithmic Differentiation

When the <u>differential equation</u> is in the form $f(x)=[u(x)]_{v(x)}$. Here, the positive values of f(x) and u(x) is considered.

What is Rolle's Theorem?

Let us consider, a continuous function f:[a,b]→ **R** which is continous on the point [a,b] and differentiable on the point (a,b) then , f(a)=f(b) and some external point exists such as c in (a,b) such that f'(c)=0.