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RESEARCH ARTICLE

NUMERICAL INTEGRATION

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ABSTRACT

This paper is about numerical integration.

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INTRODUCTION

Numerical Integration

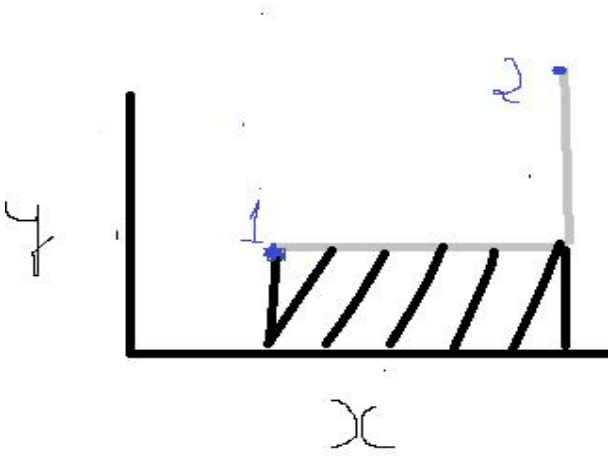


Figure 1

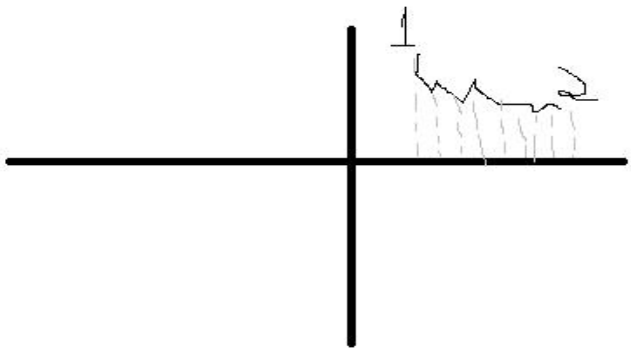
The above figure denotes how to perform integration between two points. It is denoted below

$$\int_1^2 d$$

The integral between two points follows the path of least area between point 1 and point 2 as shown in fig 1. It could be termed as numerical addition.

Example

The figure below shows an example of integration. Area under a curve between points 1 and 2 is shown with grey lines. It could be written as $\int_1^2 dx$



The projection of this curve on x-axis gives the values of x for given values y of the curve. The values of x are in this way calculated using values of a given curve or a function.

Identifying infinity using integration: Depending on the function, the value of infinity may be identified using integration. Let the value of infinity be x. Let us assume that we wish to find the value of x. Let us take the difference between two integrals. The number 12 in equation (1) is random; any other number may also be taken. The function for which infinity is calculated is → x^2

$$\int_0^{x+12} x^2 dx - \int_0^x x^2 dx \qquad (1)$$

Since the value of infinity is assumed x, any difference between above two integrals will also be x (the difference between above two integrals will also be infinity, therefore x).

This is because x is an unidentified number and the difference between any two integrals such as above will also be unidentified or infinity therefore x and Equation (1) becomes

$$x = \int_0^{x+12} x^2 dx - \int_0^x x^2 dx \qquad (2)$$

It results in a polynomial equation in x, that could be solved to calculate value of x.

CONCLUSION

This paper presents numerical integration through figures and examples.

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