Expressions for 0

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Abstract

Expressions for 0 are very important. 0 means absence. In this paper I am submitting three expressions for 0.

Keywords

Taylor series, Wolfram, Expressions, Infinite series, 0;

Introduction

Humans since history enquired about presence. He wondered about absence and put a symbol 0 for it. It is generally said that India is the land where 0 was invented.

Much later, Leonhard Euler came up with the equation $e^{i\pi} + 1 = 0$. Leonhard Euler was a Swiss mathematician often considered as the king of mathematics. His $e^{i\pi} + 1 = 0$ is voted as the best equation in the world of mathematics as it relates 5 entities e, i, π,1 and 0 and makes an equation for 0.[3]

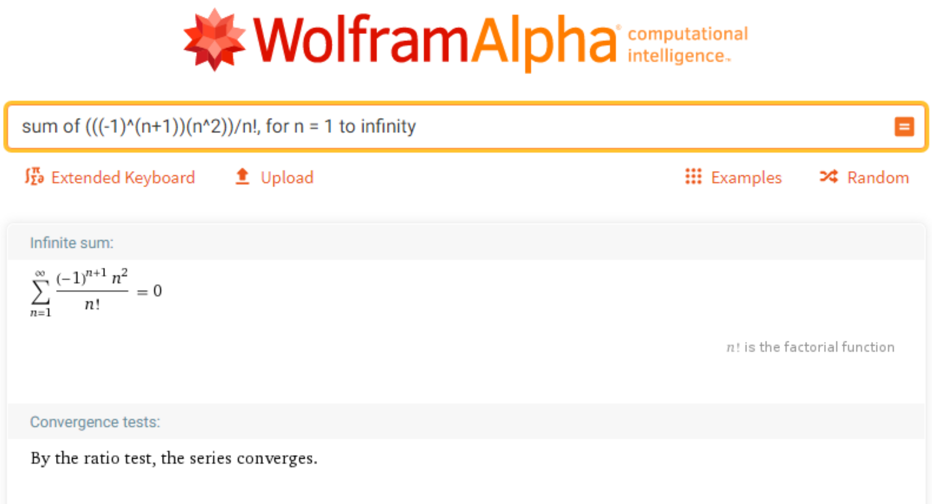
In this paper, I have used the Taylor series to obtain the expressions for 0. Brook Taylor was an English mathematician and his series was used extensively by Colin Maclaurin to give mathematical expressions of great importance. The Taylor series expanded around 0 is sometimes known as the Maclaurin series.[4][5]

My special thanks to Wolfram for their brilliant mathematical widget without which these expressions could not have been tested and confirmed for correctness. [1]

The first expression

$$\sum_{1}^{inf}\left(\frac{((-1)^{n+1})(n^2)}{n!}\right) = 0$$

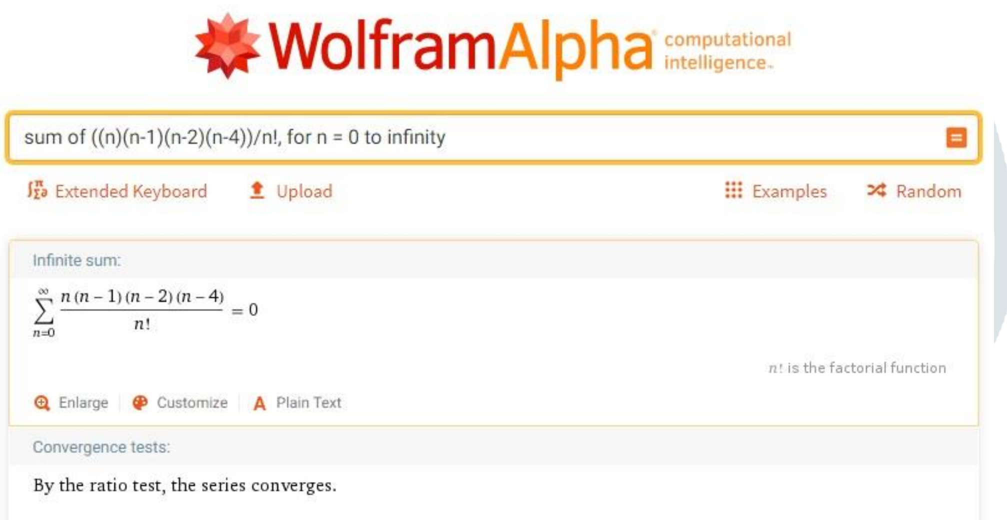
The above is inspired from the Taylor series. [2]The above expression has been checked in Wolfram alpha.[1]



The second expression

$\sum_0^{inf}(\frac{(n)(n-1)(n-2)(n-4)}{n!}) = 0$

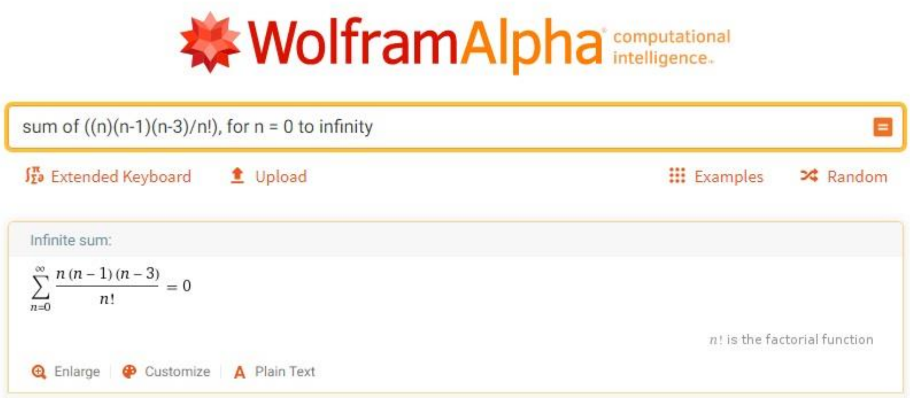
The above is inspired from the Taylor series. [2]The above expression has been checked in Wolfram alpha.[1]



The third expression

$\sum_0^{inf}(\frac{(n)(n-1)(n-3)}{n!}) = 0$

The above is inspired from the Taylor series. [2]The above expression has been checked in Wolfram alpha.[1]



References

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