

Ghosh's open problem

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Abstract

In this paper, I describe my open problem.
The paper ends with "The End"

Introduction

Open problems sometimes look deceptively simple
but sometimes require years, if not decades, to solve.
Moreover, open problems sometimes **spawn** new fields of knowledge.
In this paper, I describe my open problem.

My open problem

Consider the sequence

$$s_1 = \int_0^1 x_1^{x_1} dx_1$$

$$s_2 = \int_0^1 \int_0^1 x_1^{x_1} x_2^{x_2} dx_2 dx_1$$

$$s_3 = \int_0^1 \int_0^1 \int_0^1 x_1^{x_1} x_2^{x_2} x_3^{x_3} dx_3 dx_2 dx_1$$

and so on, where s_n has n integrals with integrands $x_i^{x_i}$ where $1 \leq i \leq n$.

Then, my open problem is: Does $\lim_{n \rightarrow \infty} s_n$ exist, and if yes, what is it?

The End