

2024

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the reasons why the number 2024 is important.
The paper ends with "The End"

Introduction

The number 2024 is important because of various reasons.
In this paper, I describe the reasons why the number 2024 is important.

The reasons why 2024 is important

1. The Diophantine equation

$$2^n + n^2 = 2024$$

has no integral solution n

2. The Diophantine equation

$$10^n + (n - 1)^{10} = 2024$$

has exactly one integral solution $n = 3$

3. The real equation

$$b^n + (n - 1)^b = 2024$$

has at least two integral solutions:

$$b = 2024, n = 1$$

$$b = 1, n = 2024$$

and at least three real solutions:

$$b = 8.63718050\dots, n = 3.22130850\dots$$

$$b = 1.89880897\dots, n = 11.8$$

$$b = 1.01176229\dots, n = 617$$

The End