

## 2953 Sum of Factorials

John von Neumann, b. Dec. 28, 1903, d. Feb. 8, 1957, was a Hungarian-American mathematician who made important contributions to the foundations of mathematics, logic, quantum physics, meteorology, science, computers, and game theory. He was noted for a phenomenal memory and the speed with which he absorbed ideas and solved problems. In 1925 he received a B.S. diploma in chemical engineering from Zurich Institute and in 1926 a Ph.D. in mathematics from the University of Budapest. His Ph.D. dissertation on set theory was an important contribution to the subject. At the age of 20, von Neumann proposed a new definition of ordinal numbers that was universally adopted. While still in his twenties, he made many contributions in both pure and applied mathematics that established him as a mathematician of unusual depth. His *Mathematical Foundations of Quantum Mechanics* (1932) built a solid framework for the new scientific discipline. During this time he also proved the mini-max theorem of GAME THEORY. He gradually expanded his work in game theory, and with coauthor Oskar Morgenstern he wrote *Theory of Games and Economic Behavior* (1944).

There are some numbers which can be expressed by the sum of factorials. For example, the number 9, as  $9 = 1! + 2! + 3!$ . Dr. von Neumann was very interested in such numbers. So, he gives you a number  $n$ , and wants you to tell him whether or not the number can be expressed by the sum of some factorials.

Well, it's just a piece of cake. For a given  $n$ , you'll check if there are some  $x_i$ , and let  $n$  equal to

$$\sum_{i=1}^t x_i! \quad (t \geq 1, x_i \geq 0, x_i = x_j \text{ iff } i = j).$$

If the answer is yes, say 'YES'; otherwise, print out 'NO'.

### Input

You will get several non-negative integer  $n$  ( $n \leq 1,000,000$ ) from input file. Each one is in a line by itself.

The input is terminated by a line with a negative integer.

### Output

For each  $n$ , you should print exactly one word ('YES' or 'NO') in a single line. No extra spaces are allowed.

### Sample Input

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9
-1
```

### Sample Output

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YES
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