

Dinostratus Numbers

Recent archaeological discoveries of researchers from the University of Alberta in Canada showed that a strange sequence of numbers were found on the walls of the pyramids of Egypt, the ruins of Machu Picchu and the stones of Stonehenge. Intrigued by the apparent coincidence researchers triggered the Department of Mathematics to decipher what were special about that sequence or numbers.

The discovery was startling. All numbers were generated by matrices of Dinostratus. Dinostratus was a famous Greek mathematician who lived from 390 to 320 BC and worked in major geometry problems like squaring the circle. Dinostratus studied matrices M of size 3×3 formed by nine distinct integers with the property that for every position (i, j) , $i = 1, \dots, 3$, $j = 1, \dots, 3$ of matrix, the element $m_{i,j}$ is a multiple of its neighbors $m_{i-1,j}$, $m_{i-1,j-1}$ and $m_{i,j-1}$ (if they exist). In his honor, we say that n is a **Dinostratus number** if exist a matrix M with the property above such that $m_{3,3} = n$.

See an example with $n = 36$.

```
1 2 4
3 6 12
9 18 36
```

The relationship between the Dinostratus numbers, the pyramids of Egypt, Stonehenge and the stones of the ruins of Machu Picchu still remains a great mystery. But researchers in Alberta are willing to study these magic numbers. Your task is to make a program that receives an integer n and checks whether this is a Dinostratus number.

Input

The input consists of several instances. Each instance is given by a line containing an integer n ($1 \leq n \leq 1048576$). The input ends with end of file.

Output

For each instance, you must print an identifier Instance k , where k is the number of the current instance. On the next line print *yes* if n is a Dinostratus number otherwise print *no*.

Example

Input:

```
36
37
38
```

Output:

```
Instance 1
yes
```

```
Instance 2
no
```

```
Instance 3
```

no