amppz

Will It Stop? CZY

Available memory: 64 MB.

Byteasar was wandering around the library of the University of Warsaw and at one of its facades he noticed a piece of a program with an inscription "Will it stop?". The question seemed interesting, so Byteasar tried to tackle it after returning home. Unfortunately, when he was writing down the piece of code he made a mistake and noted:

```
while n > 1 do
  if n mod 2 = 0 then
    n := n/2
  else
    n := 3 · n + 3
```

Byteasar is now trying to figure out, for which initial values of the variable n the program he wrote down stops. We assume that the variable n has an unbounded size, i.e., it may attain arbitrarily large values.

Input

The first and only line of input contains one integer n ($2 \leqslant n \leqslant 10^{14}$).

Output

In the first and only line of output you should write a single word `TAK` (i.e., *yes* in Polish), if the program stops for the given value of n, or `NIE` (*no* in Polish) otherwise.

Example

For the input data:

```
4
```

the correct result is:

```
TAK
```