## Collatz

Let $N$ be a positive integer, Consider the following recurrence: $f(1)=N$ and $f(K)=\left(0.5+2.5^{*}(f(K-\right.$ 1) $\bmod 2))^{*} f(K-1)+(f(K-1) \bmod 2)$ if $K>1$. For a given $N$ you have to compute the smallest $L$ for which $f(\mathrm{~L})=1$ (such an $L$ always exists for N's in the input).

## Input

Each line contains a positive integer N in decimal notation. You can be sure that N and all intermediate results are not bigger than 10^1888. Input terminated by EOF.

## Output

For each number $N$ in the input print one line with the value of $L$ in decimal notation.

## Example

```
Input:
1
2
321
11111111111111
111111111111111111111111111111111111111111111111111111111111111
```


## Output:

1
2
25
261
1296

