Time limit: 1.00 s

Memory limit: 512 MB

Consider an algorithm that takes as input a positive integer n. If $n$is even, the algorithm divides it by two, and if $n$is odd, the algorithm multiplies it by three and adds one. The algorithm repeats this, until $n$is one. For example, the sequence for $n = 3$is as follows:
$3 \rightarrow 10 \rightarrow 5 \rightarrow 16 \rightarrow 8 \rightarrow 4 \rightarrow 2 \rightarrow 1$Your task is to simulate the execution of the algorithm for a given value of n.

Input

The only input line contains an integer n.

Output

Print a line that contains all values of $n$during the algorithm.

Constraints

- $1 \leq n \leq 10^6$

Example

Input:

3

Output:

3 10 5 16 8 4 2 1

This problem is about the Collatz Conjecture. although it is not proven that all numbers reaches one, it is proven by computers that all numbers up to 10^6 work, so we can simulate the algorithm, checking if n is even with (n%2 == 0).

```
#include <bits/stdc++.h>

using namespace std;

int main() {
    int n; cin >> n;
    while (n != 1) {
        if (n%2 == 0) n/=2;
        else n=n*3+1;

        cout << n << " ";
    }
    cout << 1;

    return 0;
}

```