

Problem A

A simple task



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Given a positive integer n find the odd integer o and the nonnegative integer p such that $n = o2^p$.

Example

For $n = 24$, $o = 3$ and $p = 3$.

Task

Write a program which for each data set:

- reads a positive integer n ,
- computes the odd integer o and the nonnegative integer p such that $n = o2^p$,
- writes the result.

Input

The first line of the input contains exactly one positive integer d equal to the number of data sets, $1 \leq d \leq 10$. The data sets follow.

Each data set consists of exactly one line containing exactly one integer n , $1 \leq n \leq 10^6$.

Output

The output should consists of exactly d lines, one line for each data set.

Line i , $1 \leq i \leq d$, corresponds to the i -th input and should contain two integers o and p separated by a single space such that $n = o2^p$.

Example

For the input:

1
24

the correct answer is:

3 3