

Dipu and Maths

Dipu is a student of Mathematics and solves the problems of Maths within seconds. So he boasts of his skill of solving problems based on Mathematics. One day, when Dipu was talking about his abilities before his friend Baidy, Baidy gives him a problem to solve. Dipu is in trouble this time and asks you for help. Problem given by Baidy is as following ---

let us define two functions $f(n)$ and $g(n)$ for a number n , such that

$f(n)$ = number of even divisors of n .

$g(n)$ = number of odd divisors of n .

find value of $f(n)$ and $g(n)$ for a given number n and print them.

Input

First line of input contains an integer t (no. of test cases to follow). Next t lines contains one integer n (the number) per line.

Output

Print exactly t lines containing two integers each - $f(n)$ and $g(n)$ for the given n .

Constraints

$1 \leq t \leq 1000$

$0 \leq n \leq 10^8$

Example

Input:

3

4

7

36

Output:

2 1

0 2

6 3

Explanation

for 3rd test case, $n = 36$.

divisors of 36 are -- 1,2,3,4,6,9,12,18,36.

out of these divisors 6 are even and 3 are odd.

so answer is 6 3.