

Each data set consists of a single line of input consisting of two space-separated values. The first value is an integer, K , which is the data set number. The next value Y , ($1 \leq Y \leq 2^{48}$), is the number of years the porpoises have been alive.

Output

For each data set there is a single line of output. The line consists of the data set number, K , a single space, and the number of immortal porpoise pairs alive at the end of Y years.

Sample Input

```
11
1 1
2 2
3 8
4 20
5 46
6 60
7 3749999998
8 3749999999
9 3750000000
10 3750000001
11 281474976710656
```

Sample Output

```
1 1
2 1
3 21
4 6765
5 836311903
6 8755920
7 499999999
8 500000001
9 0
10 500000001
11 309764667
```