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HOME TOP CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP DELTIX ROUNDS 2021

PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

A. From Hero to Zero

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given an integer n and an integer k.

In one step you can do one of the following moves:

- decrease n by 1;
- divide n by k if n is divisible by k.

For example, if $n = 27$ and $k = 3$ you can do the following steps:
$27 \to 26 \to 25 \to 24 \to 8 \to 7 \to 6 \to 2 \to 1 \to 0$.

You are asked to calculate the minimum number of steps to reach 0 from n.

Input

The first line contains one integer t ($1 \le t \le 100$) — the number of queries.

The only line of each query contains two integers n and k ($1 \le n \le 10^{18}$, $2 \le k \le 10^{18}$).

Output

For each query print the minimum number of steps to reach 0 from n in single line.

Example

input	Copy
2 59 3 1000000000000000000 10	

output	Copy
8 19	

Note

Steps for the first test case are: $59 \to 58 \to 57 \to 19 \to 18 \to 6 \to 2 \to 1 \to 0$.

In the second test case you have to divide n by k 18 times and then decrease n by 1.

Educational Codeforces Round 66 (Rated for Div. 2)

Finished

→ **Virtual participation**

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Start virtual contest

→ **Problem tags**

implementation math *900

No tag edit access

→ **Contest materials**

- Announcement
- Tutorial (en)

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