A. Upload More RAM

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

Oh no, the ForceCodes servers are running out of memory! Luckily, you can help them out by uploading some of your RAM!

You want to upload n GBs of RAM. Every second, you will upload either 0 or 1 GB of RAM. However, there is a restriction on your network speed: in any k consecutive seconds, you can upload only at most 1 GB of RAM in total.

Find the minimum number of seconds needed to upload n GBs of RAM!

Input

Each test contains multiple test cases. The first line of input contains a single integer t ($1 \le t \le 10^4$) — the number of test cases. The description of the test cases follows.

The first and only line of each test case contains two integers n and k ($1 \le n, k \le 100$) — the number of GBs that you want to upload and the length of the time window respectively.

Output

For each test case, output a single integer — the minimum number of seconds needed to upload n GBs of RAM.

Example

```
input
6
5 1
2 2
2 3
1 7
11 5
100 100
```

```
output
5
3
4
1
51
9901
```

Note

In the first test case, you can upload 1 GB of RAM per second, so to upload 5 GBs, you need 5 seconds.

In the second test case, you can upload 1 GB in the first second, 0 GBs in the second second, and 1 GB in the third second, which in total adds up to exactly 2 GBs of uploaded RAM.

In the third test case, you can upload 1 GB in the first second, 0 GBs in the second second, 0 GBs in the third second, and 1 GB in the fourth second, which in total adds up to exactly 2 GBs of uploaded RAM.

→ **Virtual participation**

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Start virtual contest

→ **Problem tags**

greedy   math   *800

No tag edit access

→ **Contest materials**

- Announcement (en)   ✕
- Video Tutorial (en)   ✕
- Tutorial #2 (en)   ✕

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