Problem A. Innome

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	512 megabytes

Young software developer Michael succeeded on Innopolis Open and was awarded by Innobook laptop with a pre-installed "Innome" web browser. This strange web browser can support at most k open windows and the i-th open tab in the window uses i megabytes of memory. Michael knows that his new laptop has m megabytes of memory. Please help Michael to calculate the maximum number of tabs he can open.

Input

The first line contains single integer t, the number of tests. The next t lines contains description of the tests one per line. Each test is represented by two integers m and k, the size of Innobook memory and the maximum possible number of windows.

Output

For each test output a single integer on a separate line, the maximum number of tabs that Michael can open.

Scoring

Subtask	Score	Constraints			Scoring	Required subtasks
		t	m	k		
1	10	$t \le 100$	$m \le 10^6$	$k = 1$	subtask	—
2	10	$t \le 100$	$m \le 10^6$	$k \le 2$	subtask	1
3	20	$t \le 1000$	$m \le 10^9$	$k \le 10^9$	subtask	1 and 2
4	25	$t \le 10^5$	$m \le 10^9$	$k \le 10^9$	subtask	1, 2 and 3
5	35	$t \le 10^5$	$m \le 10^{18}$	$k \le 10^9$	subtask	1, 2, 3 and 4

Feedback

The verdict for each testcase of each subtask is shown.

Example

standard input	standard output
2 23 3 2 3	10 2