Fair Distribution

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

There are n robots and m energy bars in the Dream Kingdom. DreamGrid, the king, is trying to make a fair distribution of the energy bars. A fair distribution exists if and only if the number of the energy bars is a multiple of the number of robots.

The only tool DreamGrid has is a powerful laser gun. Every time he turns on the laser gun, he can do exactly one of the two things:

- Create a new energy bar.
- Destroy a robot.

To avoid the extinction of robots, it's forbidden to destroy all the n robots. It takes one dollar to turn on the laser gun once. You are asked to find the minimum cost of making a fair distribution.

Input

There are multiple test cases. The first line of the input contains an integer T ($1 \leq T \leq 1\,000$), indicating the number of test cases. For each test case:

The only line contains two integers n and m ($1 \leq n, m \leq 10^8$), indicating the initial number of robots and energy bars.

Output

For each test case output one line containing an integer, indicating the minimum cost to get a fair distribution.

Example

standard input	standard output
3 3 12 10 6 8 20	0 4 2

Note

For the third sample, the best way is to destroy a robot and create an energy bar. After that, we have 7 robots and 21 energy bars, which leads to a fair distribution.