2467 - Time to Balance

Description

When the finances of companies fall into disarray, the big honcho in the land of B likes to see deficits reduced as soon as possible to a manageable level. The preferred approach requires such companies to:
1.reduce the current yearly deficit in half, if the reduced deficit remains an integer and is not less than its maximum manageable level, otherwise
2.reduce the current yearly deficit by 1, if the reduced deficit is not less than its maximum manageable level.

Each company in the land of B must declare its maximum manageable deficit level, for tax purposes, as a positive integer. Your task is to write a program to read the companies' data and to calculate the minimum number of years each company needs to get into maximum manageable deficit levels. If the current deficit of a company is below or equal to its maximum manageable level, your program should print zero.

Input specification

Input consists of the maximum manageable and current deficits for several companies. The data for each company consists of two positive integers, on a line by themselves: the first integer represents the maximum manageable deficit and the second integer represents the current deficit. The two integers are separated by a single space, and are less than 10000. A line with two zeros, separated by a single space, denotes the end of the input.

Output specification

For each company, print the number years it needs to return to manageable deficit level as an integer on a separate line, in the order of their data's presence in the input.

Sample input

```
4 7
1 9
4 8
4 10
10 4
4 16
0 0
```

Sample output

```
3
4
1
2
0
2
```

Hint(s)

Source	South Pacific Regional Contest 2010
Added by	**ralcolea**
Addition date	2013-06-10
Time limit (ms)	1500
Test limit (ms)	1500
Memory limit (kb)	65535
Output limit (mb)	64
Size limit (bytes)	30000
Enabled languages	Bash C C# C++ Java Pascal Perl PHP Python Ruby Text