THE JUMPING BALL

Problem Statement:

A ball is dropped from a height 'h' and it bounces at a bouncing constant 'b' i.e the ball bounces back to a height that is 1/b times the height from which it was originally dropped. So given h and b we need to find the number of times the ball bounces before it comes to halt. Any height less than 1m can be considered as the halt.

Input :

First line contains the no.of testcases t. 1<= t <= 100000.
The next 't' lines contain 2 space separated integers 'h' and 'b'.
1<=h<=10^9
2<=b<= 30

Output:

For each test case output a single line containing the answer.

Sample input:

2
8 2
2 9

Sample Output:

3
0