

1275 – Internet Service Providers

A group of N Internet Service Provider companies (ISPs) use a private communication channel that has a maximum capacity of C traffic units per second. Each company transfers T traffic units per second through the channel and gets a profit that is directly proportional to the factor $T(C - T \cdot N)$. The problem is to compute the smallest value of T that maximizes the total profit the N ISPs can get from using the channel. Notice that N , C , T , and the optimal T are integer numbers.

Input

Input starts with an integer T (≤ 20), denoting the number of test cases.

Each case starts with a line containing two integers N and C ($0 \leq N, C \leq 10^9$).

Output

For each case, print the case number and the minimum possible value of T that maximizes the total profit. The result should be an integer.

Sample Input	Output for Sample Input
6	Case 1: 0
1 0	Case 2: 0
0 1	Case 3: 0
4 3	Case 4: 2
2 8	Case 5: 4
3 27	Case 6: 20000000
25 1000000000	