Esferas

Balls

The classic *Two Glass Balls* brain-teaser is often posed as: "Given two identical glass spheres, you would like to determine the lowest floor in a 100-story building from which they will break when dropped. Assume the spheres are undamaged when dropped below this point. What is the strategy that will minimize the worst-case scenario for number of drops?" Suppose that we had only one ball. We'd have to drop from each floor from 1 to 100 in sequence, requiring 100 drops in the worst case. Now consider the case where we have two balls. Suppose we drop the first ball from floor ***n***. If it breaks we're in the case where we have one ball remaining and we need to drop from floors 1 to ***n***-1 in sequence, yielding ***n*** drops in the worst case (the first ball is dropped once, the second at most ***n***-1 times). However, if it does not break when dropped from floor ***n***, we have reduced the problem to dropping from floors ***n***+1 to 100. In either case we must keep in mind that we've already used one drop. So the minimum number of drops, in the worst case, is the minimum over all ***n***. You will write a program to determine the minimum number of drops required, in the worst case, given ***B*** balls and an ***M***-story building.

Input

The first line of input contains a single integer ***P***, (1 ≤ ***P*** ≤ 1000), which is the number of data sets that follow. Each data set consists of a single line containing three (3) decimal integer values: the problem number, followed by a space, followed by the number of balls ***B***, (1 ≤ ***B*** ≤ 50), followed by a space and the number of floors in the building ***M***, (1 ≤ ***M*** ≤ 1000).

Output

For each data set, generate one line of output with the following values: The data set number as a decimal integer, a space, and the minimum number of drops needed for the corresponding values of ***B*** and ***M***.

Sample Input

4

1 2 10

2 2 100

3 2 300

4 25 900

Sample Output

1 4

2 14

3 24