1408 – Batting Practice

After being all out for 58 and 78 in two matches in the most prestigious tournament in the world, the coach of a certain national cricket team was very upset. He decided to make the batsmen practice a lot. But he was wondering how to make them practice, because the possibility of getting out seems completely random for them. So, he decided to keep them in practice as long as he can and told them to practice in the net until a batsman remains not-out for $\mathbf{k_1}$ consecutive balls. But if the batsman continues to be out for consecutive $\mathbf{k_2}$ balls, then the coach becomes hopeless about the batsman and throws him out of the team. In both cases, the practice session ends for the batsman. Now the coach is wondering how many balls the practice session is expected to take.

For a batsman the probability of being out in a ball is independent and is equal to **p**. What is the expected number of balls he must face to remain not out for $\mathbf{k_1}$ consecutive balls or become out in consecutive $\mathbf{k_2}$ balls.

Input

Input starts with an integer **T (≤ 15000)**, denoting the number of test cases.

Each case starts with a line containing a real number **p (0 ≤ p ≤ 1)** and two positive integers $\mathbf{k_1}$ and $\mathbf{k_2}$ **($k_1 + k_2 \leq 50$)**. **p** will contain up to three digits after the decimal point.

Output

For each case, print the case number and the expected number of balls the batsman will face. Errors less than $\mathbf{10^{-2}}$ will be ignored.

Sample Input	Output for Sample Input
5 0.5 1 1 0.5 1 2 0.5 2 2 0.19 1 3 0.33 2 1	Case 1: 1 Case 2: 1.5 Case 3: 3 Case 4: 1.2261000000 Case 5: 1.67