1104 – Birthday Paradox

Sometimes some mathematical results are hard to believe. One of the common problems is the birthday paradox. Suppose you are in a party where there are **23** people including you. What is the probability that at least two people in the party have same birthday? Surprisingly the result is more than **0.5**. Now here you have to do the opposite. You have given the number of days in a year. Remember that you can be in a different planet, for example, in Mars, a year is **669** days long. You have to find the minimum number of people you have to invite in a party such that the probability of at least two people in the party have same birthday is at least **0.5**.

Input

Input starts with an integer **T (≤ 20000)**, denoting the number of test cases.

Each case contains an integer **n (1 ≤ n ≤ 10^5)** in a single line, denoting the number of days in a year in the planet.

Output

For each case, print the case number and the desired result.

Sample Input	Output for Sample Input
2 365 669	Case 1: 22 Case 2: 30