

# The Chocolate Bar

**Description:**

Everyone has had one of those days where they need something to brighten their mood. This “something” can range from a moment of peace and quiet to a copious amount of video games. In other cases, something sweet might be considered – a chocolate bar for example. These bars have a tendency to be divided into squares, making the sharing of these treats much easier. Suppose you come across a group of people that also look like they could lighten up. We’re interested in calculating how many times a chocolate bar must be broken in order for every individual to receive an equal share.

**Input:**

The first line will be an integer  $N$  ( $0 < N < 20000$ ) stating the number of test cases, followed by a newline. Every line following the first line is a test case. Each test case will consist of a single integer describing how many people (including yourself) are in a group, followed by a newline. Assume there is only one chocolate bar. Also assume it is possible to break this chocolate bar into equal-sized pieces of any size.

**Output:**

Print the number of times the chocolate bar must be broken (or split) in order to provide each individual with a fair share of chocolate. The format is as follows: Case # $i$ :  $b$ . Where  $i$  is the current test case and  $b$  is the number of breaks required for that test case. Each test case should be printed on a separate line in the order that the input appears.

Sample Input	Sample Output
3	Case #1: 9
10	Case #2: 46
47	Case #3: 34
35	