

Round 1B 2010

[A. File Fix-it](#)[B. Picking Up Chicks](#)**C. Your Rank is Pure**[Contest Analysis](#)[Questions asked](#) **1**

Submissions

File Fix-it

12pt Not attempted
3049/3404 users
correct (90%)14pt Not attempted
2909/3047 users
correct (95%)

Picking Up Chicks

13pt Not attempted
1430/1965 users
correct (73%)17pt Not attempted
1393/1424 users
correct (98%)

Your Rank is Pure

14pt Not attempted
1036/1705 users
correct (61%)30pt Not attempted
502/827 users
correct (61%)

Top Scores

Gluk	100
yuhch123	100
Gennady.Korotkevich	100
SergeyRogulenko	100
andrewzta	100
vepifanov	100
burunduk3	100
nika	100
mystic	100
Vasyl	100

Problem C. Your Rank is Pure

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input
14 points

Solve C-small

Large input
30 points

Solve C-large

Problem

Pontius: You know, I like this number 127, I don't know why.
Woland: Well, that is an object so pure. You know the *prime numbers*.
Pontius: Surely I do. Those are the objects possessed by our ancient masters hundreds of years ago. Oh, yes, why then? 127 is indeed a prime number as I was told.
Woland: Not... only... that. 127 is the 31st prime number; then, 31 is itself a prime, it is the 11th; and 11 is the 5th; 5 is the 3rd; 3, you know, is the second; and finally 2 is the 1st.
Pontius: Heh, that is indeed... purely prime.

The game can be played on any subset S of positive integers. A number in S is considered pure with respect to S if, starting from it, you can continue taking its rank in S , and get a number that is also in S , until in finite steps you hit the number 1, which is not in S .

When n is given, in how many ways you can pick S , a subset of $\{2, 3, \dots, n\}$, so that n is pure, with respect to S ? The answer might be a big number, you need to output it modulo 100003.

Input

The first line of the input gives the number of test cases, T . T lines follow. Each contains a single integer n .

Output

For each test case, output one line containing "Case #x: y", where x is the case number (starting from 1) and y is the answer as described above.

Limits

 $T \leq 100$.

Small dataset

 $2 \leq n \leq 25$.

Large dataset

 $2 \leq n \leq 500$.

Sample

Input	Output
2	Case #1: 5
5	Case #2: 8
6	



