



Time Remaining: 18 hours 47 min Rank: 11478 Score: 0

malarkannan.p@gmail.com | [Contest scoreboard](#) | [Sign out](#)

Qualification Round 2016

A. Counting Sheep[B. Revenge of the Pancakes](#)[C. Coin Jam](#)[D. Fractiles](#)[Ask a question](#) 1[View my submissions](#)

Submissions	
Counting Sheep	
7pt	Not attempted 11121/12477 users correct (89%)
8pt	Not attempted 10459 users attempted
Revenge of the Pancakes	
10pt	Not attempted 6917/7379 users correct (94%)
10pt	Not attempted 6557 users attempted
Coin Jam	
10pt	Not attempted 2695/3162 users correct (85%)

Problem A. Counting SheepConfused? Read the [quick-start guide](#).Small input
7 points

Solve A-small

You may try multiple times, with penalties for wrong submissions.

Large input
8 pointsYou must solve the small input first.
You have 8 minutes to solve 1 input file. (Judged after contest.)**Problem**

Bleatrix Trotter the sheep has devised a strategy that helps her fall asleep faster. First, she picks a number N . Then she starts naming N , $2 \times N$, $3 \times N$, and so on. Whenever she names a number, she thinks about all of the digits in that number. She keeps track of which digits (0, 1, 2, 3, 4, 5, 6, 7, 8, and 9) she has seen at least once so far as part of any number she has named. Once she has seen each of the ten digits at least once, she will fall asleep.

Bleatrix must start with N and must always name $(i + 1) \times N$ directly after $i \times N$. For example, suppose that Bleatrix picks $N = 1692$. She would count as follows:

- $N = 1692$. Now she has seen the digits 1, 2, 6, and 9.
- $2N = 3384$. Now she has seen the digits 1, 2, 3, 4, 6, 8, and 9.
- $3N = 5076$. Now she has seen all ten digits, and falls asleep.

What is the last number that she will name before falling asleep? If she will count forever, print INSOMNIA instead.

Input

20pt | Not attempted
1713 users attempted

Fractiles

10pt | Not attempted
1444/1660 users
 correct (87%)

25pt | Not attempted
815 users attempted

Top Scores

Lewin	100
Endagorion	100
xiaowuc1	100
xyz111	100
HellKitsune123	100
h4tguy	100
YuryBandarchuk	100
ivan.popelyshev	100
burunduk3	100
Aksenov239	100

The first line of the input gives the number of test cases, **T**. **T** test cases follow. Each consists of one line with a single integer **N**, the number Bleatrix has chosen.

Output

For each test case, output one line containing Case #x: y, where x is the test case number (starting from 1) and y is the last number that Bleatrix will name before falling asleep, according to the rules described in the statement.

Limits

$1 \leq T \leq 100$.

Small dataset

$0 \leq N \leq 200$.

Large dataset

$0 \leq N \leq 10^6$.

Sample

Input	Output
5	Case #1: INSOMNIA
0	Case #2: 10
1	Case #3: 90
2	Case #4: 110
11	Case #5: 5076
1692	

In Case #1, since $2 \times 0 = 0$, $3 \times 0 = 0$, and so on, Bleatrix will never see any digit other than 0, and so she will count forever and never fall asleep. Poor sheep!

In Case #2, Bleatrix will name 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. The 0 will be the last digit needed, and so she will fall asleep after 10.

In Case #3, Bleatrix will name 2, 4, 6... and so on. She will not see the digit 9 in any number until 90, at which point she will fall asleep. By that point, she will have already seen the digits 0, 1, 2, 3, 4, 5, 6, 7, and 8, which will have appeared for the first time in the numbers 10, 10, 2, 30, 4, 50, 6, 70, and 8, respectively.

In Case #4, Bleatrix will name 11, 22, 33, 44, 55, 66, 77, 88, 99, 110 and then fall asleep.

Case #5 is the one described in the problem statement. Note that it would only show up in the Large dataset, and not in the Small dataset.

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