code jam
print "hello, world!"

Time Remaining: 23 hours 49 min Rank: 5413 Score: 0

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Qualification Round 2016

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Submissions

Counting Sheep

7pt	Not attempted **5252/5891 users** correct (89%)
8pt	Not attempted **4874 users** attempted

Revenge of the Pancakes

10pt	Not attempted **2710/2960 users** correct (92%)
10pt	Not attempted **2543 users** attempted

Coin Jam

10pt	Not attempted **787/964 users** correct (82%)
20pt	Not attempted **468 users** attempted

Fractiles

10pt	Not attempted **408/472 users** correct (86%)
25pt	Not attempted **224 users** attempted

Top Scores

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

Problem A. Counting Sheep

Confused? 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 points	You 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 × **N**, 3 × **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) × **N** directly after *i* × **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.
- 2**N** = 3384. Now she has seen the digits 1, 2, 3, 4, 6, 8, and 9.
- 3**N** = 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

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 ≤ **T** ≤ 100.

Small dataset

0 ≤ **N** ≤ 200.

Large dataset

0 ≤ **N** ≤ 10^6.

Sample

Aksenov239	100

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

In Case #1, since 2 × 0 = 0, 3 × 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.