apac test
powered by Google Code Jam

Time Remaining: 2 hours 9 min Rank: 193 Score: 0

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Round B APAC Test 2016

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- Submissions

Travel

6pt	Not attempted **81/408 users** correct (20%)
12pt	Not attempted **73 users** attempted

gWheels

5pt	Not attempted **108/255 users** correct (42%)
14pt	Not attempted **41 users** attempted

gNumbers

8pt	Not attempted **8/101 users** correct (8%)
16pt	Not attempted **4 users** attempted

Albocede DNA

16pt	Not attempted **0/30 users** correct (0%)
23pt	Not attempted

- Top Scores

kcm1700	61
imamur	37
abcsampson	37
yaray	37
tapasjain01	37
himanshujaju	24
Mr.Fury	24
mkrjn99	24
Shafaet	23
johngs	23

Problem C. gNumbers

Confused? Read the quick-start guide.

Small input 8 points	Solve C-small You may try multiple times, with penalties for wrong submissions.
Large input 16 points	You must solve the small input first. You have 8 minutes to solve 1 input file. (Judged after contest.)

gNumbers

Googlers are crazy about numbers and games, especially number games! Two Googlers, Laurence and Seymour, have invented a new two-player game based on "gNumbers". A number is a gNumber if and only if the sum of the number's digits has no positive divisors other than 1 and itself. (In particular, note that 1 is a gNumber.)

The game works as follows: First, someone who is not playing the game chooses a starting number **N**. Then, the two players take turns. On a player's turn, the player checks whether the current number C is a gNumber. If it is, the player loses the game immediately. Otherwise, the player chooses a prime factor P of C, and keeps dividing C by P until P is no longer a factor of C. (For example, if the current number were 72, the player could either choose 2 and repeatedly divide by 2 until reaching 9, or choose 3 and repeatedly divide by 3 until reaching 8.) Then the result of the division becomes the new current number, and the other player's turn begins.

Laurence always gets to go first, and he hates to lose. Given a number **N**, he wants you to tell him which player is certain to win, assuming that both players play optimally.

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow; each consists of a starting number **N**.

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 winner's name: either `Laurence` or `Seymour`.

Limits

$1 \le \mathbf{T} \le 100$.

Small dataset

$1 < \mathbf{N} \le 1000$.

Large dataset

$1 < \mathbf{N} \le 10^{15}$.

Sample

Input	Output
9 2 3 4 6	Case #1: Seymour Case #2: Seymour Case #3: Laurence Case #4: Laurence Case #5: Laurence

```
8                   Case #6: Laurence
9                   Case #7: Seymour
30                  Case #8: Laurence
36300               Case #9: Seymour
1000000000000000
```

In Case #1, 2 is already a gNumber, since the sum of its digits is 2, which has no positive divisors other than 1 and itself. So Laurence immediately loses, which means Seymour wins. The same is true for Case #2.

In Case #3, 4 is not a gNumber, since the sum of its digits is 4, which has a positive divisor other than 1 and itself (namely, 2). 4 has one prime factor (2), so Laurence must choose this factor and repeatedly divide 4 by it, which leaves him with 1. Then, Seymour begins his turn with 1, which is a gNumber. So he loses and Laurence wins.

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