



Game of Stones

by Shafaet

Problem

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Two players (numbered **1** and **2**) are playing a game with n stones. Player **1** always plays first, and the two players move in alternating turns. The game's rules are as follows:

- In a single move, a player can remove either **2**, **3**, or **5** stones from the game board.
- If a player is unable to make a move, that player loses the game.

Given the number of stones, find and print the name of the winner (i.e., **First** or **Second**) on a new line. Each player plays optimally, meaning they will not make a move that causes them to lose the game if some better, winning move exists.

Input Format

The first line contains an integer, T , denoting the number of test cases.

Each of the T subsequent lines contains a single integer, n , denoting the number of stones in a test case.

Constraints

- $1 \leq T \leq 100$
- $1 \leq n \leq 100$

Output Format

On a new line for each test case, print **First** if the first player is the winner; otherwise, print **Second**.

Sample Input

```
8
1
2
3
4
5
6
7
10
```

Sample Output

```
Second
First
First
First
First
First
Second
First
```

Explanation

In the sample, we have $T = 8$ testcases.

We'll refer to our two players as P_1 and P_2 .

If $n = 1$, P_1 can't make any moves and loses the game (i.e., the P_2 wins and we print **Second** on a new line).

If $n = 2$, P_1 removes 2 stones in their first move and wins the game, so we print **First** on a new line.

If $n = 3$, P_1 removes 2 stones in their first move, leaving 1 stone on the board. Because P_2 is left with no available moves, P_1 wins and we print **First** on a new line.

If $n = 4$, P_1 removes 3 stones in their first move, leaving 1 stone on the board. Because P_2 has no available moves, P_1 wins and we print **First** on a new line.

If $n = 5$, P_1 removes all 5 stones from the game board. Because P_2 is left with no available moves, P_1 wins and we print **First** on a new line.

If $n = 6$, P_1 removes 5 stones in their first move, leaving 1 stone on the board. Because P_2 has no available moves, P_1 wins and we print **First** on a new line.

If $n = 7$, P_1 can make any of the following three moves:

1. Remove 2 stones, leaving 5 stones on the board. P_2 then removes 5 stones. Because P_1 has no available moves, P_2 wins.
2. Remove 3 stones, leaving 4 stones on the board. P_2 then removes 3 stones, leaving 1 stone left on the board. Because P_1 has no available moves, P_2 wins.
3. Remove 5 stones, leaving 2 stones on the board. P_2 then removes the 2 remaining stones. Because P_1 has no available moves, P_2 wins.

Because all possible moves result in P_2 winning, we print **Second** on a new line.

If $n = 10$, P_1 can remove either 2 or 3 stones to win the game, so we print **First** on a new line. Recall that each player moves optimally, so P_1 will not remove 5 stones because doing so would cause P_1 to lose the game.

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Submissions: 9971



Max Score: 15



Difficulty: Easy

Rate This Challenge:

☆☆☆☆☆

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Java 7  

```
1 import java.io.*;
2 import java.util.*;
3 import java.text.*;
4 import java.math.*;
5 import java.util.regex.*;
6
7 public class Solution {
8
9     public static void main(String[] args) {
10         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11     }
12 }
```

Line: 1 Col: 1

 [Upload Code as File](#)

☐ Test against custom input

Run Code

Submit Code

