Snapper Chain

The *Snapper* is a clever little device that, on one side, plugs its input plug into an output socket, and, on the other side, exposes an output socket for plugging in a light or other device.

When a *Snapper* is in the ON state and is receiving power from its input plug, then the device connected to its output socket is receiving power as well. When you snap your fingers -- making a clicking sound -- any *Snapper* receiving power at the time of the snap toggles between the ON and OFF states.

In hopes of destroying the universe by means of a singularity, I have purchased ***N*** *Snapper* devices and chained them together by plugging the first one into a power socket, the second one into the first one, and so on. The light is plugged into the ***N***th *Snapper*.

Initially, all the *Snapper*s are in the OFF state, so only the first one is receiving power from the socket, and the light is off. I snap my fingers once, which toggles the first *Snapper* into the ON state and gives power to the second one. I snap my fingers again, which toggles both *Snapper*s and then promptly cuts power off from the second one, leaving it in the ON state, but with no power. I snap my fingers the third time, which toggles the first *Snapper* again and gives power to the second one. Now both *Snapper*s are in the ON state, and if my light is plugged into the second *Snapper* it will be on.

I keep doing this for hours. Will the light be on or off after I have snapped my fingers ***K*** times? The light is on if and only if it's receiving power from the *Snapper* it's plugged into.

Input
The first line of the input gives the number of test cases, ***T***. ***T*** lines follow. Each one contains two integers, ***N*** and ***K***.

Output
For each test case, output one line containing "Case #***x***: ***y***", where ***x*** is the case number (starting from 1) and ***y*** is either "ON" or "OFF", indicating the state of the light bulb.

Limits
$1 \le T \le 10{,}000$
$1 \le N \le 30$
$0 \le K \le 10^8$

Sample

Input	Output
4 1 0 1 1 4 0 4 47	 Case #1: OFF Case #2: ON Case #3: OFF Case #4: ON

Munkaterület

Megoldás

```
#include <cstdio>
using namespace std;

int main()
{
	unsigned long T;
	scanf("%u",&T);
	for( int i=1; i<=T; ++i )
	{
		unsigned long N, K;
		scanf("%u%u",&N,&K);

		bool on; // Ennek a változóba írd az eredményt…
```

Ide írd a megoldást!

```
		// … hogy itt kiíródjon az értéke.
		printf( "Case #%d: %s\n", i, on ? "ON" : "OFF" );
	}
}
```