

Problem M
Tree Switch
Input File: *test.in*
Time Limit: *1 Second*

Given a tree, root node with label 0

Operation M x : switch node x (0->1 or 1->0)

Operation S x : get the path from x to root, first 1.

Input File Format

Input consists of several datasets. ...

Output Format

For each dataset,

Sample Input

```
31
0 1
0 2
0 3
1 4
1 5
2 6
2 7
3 8
4 9
4 10
4 11
6 12
6 13
12 14
12 15
13 16
13 17
14 18
14 19
14 20
17 21
17 22
20 23
21 24
21 25
22 26
22 27
```

23 28
24 29
24 30
10
M 6
S 29
S 9
M 0
S 9
S 6
S 2
M 6
S 29
S 6

Output for the Sample Input

6
-1
0
6
0
0