2010 DEDICATED FOLLOWER

It has been said that blue is the new black. Of course it has also been said that red is the new blue and black is the new red, which means black is the new black. That's just silly.

The fashion industry is a very serious place, and it's important that statements such as "X is the new X" cannot be deduced. Fashion pundits can claim that when they were reported saying "X is the new Y" they were misreported and actually said "Y is the new X". Given a list of fashion statements we need to calculate the minimum number of statements that can be reversed, so that no inappropriate deductions can be made.

Note that the fashion industry is reasonably careful — for each colour there will be at most one way of deducing that it is the new version of itself and that deduction will not use any colour more than once (other than the duplication of the colour itself at the beginning and end). The fashion industry is also relatively fickle and any given colour might be linked to an arbitrary number of other colours.

For example, in the opening paragraph since black is the new red which is the new blue which is the new black, black is the new black; similarly a chain of reasoning shows red is the new red and blue is the new blue. By reversing any one of the fashion statements, none of these deductions can be made.

SAMPLE INPUT

```
1 2
3 1
2 3
-1 -1
```

For convenience, we will represent colours by integers. Each line of input will contain two integers, f ($1 \leq f \leq 2^{16}$) then t ($1 \leq t \leq 2^{16}$), indicating that "t is the new f". No line will be repeated and on each line $f \neq t$. The input will be terminated by the line `-1 -1` and there will be at most 2^{16} lines.

You should output a single integer indicating the minimum number of statements that need to be reversed so that no inappropriate deductions can be made.

SAMPLE OUTPUT

```
1
```