



You've seen dice, but can you write a program that recognizes them?

Input Format

The face of a die is represented by three successive lines of input, each containing three bits. The absence or presence of a spot in a position on the face is represented by zero (0) or one (1), respectively. Each die in the input is followed by an empty line.

Output Format

For each die in the input, print 'invalid' if the die doesn't match any of those above (rotated some multiple of 90°); otherwise, print its numeric value.

Input Sample

```
101
010
101

100
010
001

010
101
010

001
000
100
```

Output Sample

```
5
3
invalid
2
```