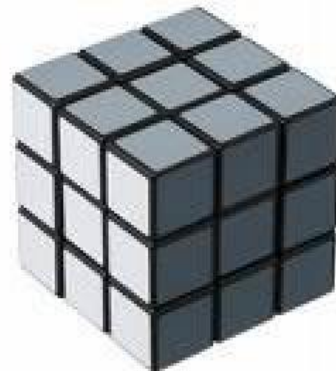


## 3990 Toy Cube

My kid loves to play with this toy cube. The cube consists of 6 faces, each of them divided into a  $3 \times 3$  grid (9 cells). Each cell is painted one of the six possible colors (RGBYWO). My kid loves his cube a lot, but he has lost it. He is asleep now and I want to surprise him by giving him back a cube that is identical to his own. Two cubes are said to be identical if the second one can be rotated to exactly resemble the first when viewed from any angle. Having said that, the trouble now is that I have a cube that might not really be identical to his. But before he wakes up, I want to repaint some of the cells of the cube to match his own. Can you tell me the minimal number of cells I need to repaint?



**Green is the front face.**

### Input

The first line contains the number of testcases.

Each test case consists of two cube descriptions, one followed by the other.

Each cube description consists of exactly 10 lines; the 10th line is empty.

The first three lines describe the TOP face, the next three describing the faces in LEFT, FRONT, RIGHT, BACK face order, and the next three lines describe the BOTTOM face. The cube is described as if the outer paper was cut and rolled out. If you stick the leftmost column of the LEFT face with the rightmost column of the RIGHT face, and stick the topmost row of the TOP face with the bottom-most row of the BOTTOM face, you get the cube. Follow the sample input for more clarity.

### Output

For each test case, print 'Case #< case - number >:' (sans quotes) followed by the minimal number of cells to be repainted to match the two cubes.

### Sample Input

```
2
    W W W
    W W W
    W W W
R R R G G G B B B Y Y Y
R R R G G G B B B Y Y Y
R R R G G G B B B Y Y Y
    O O O
    O O O
    O O O

    Y Y Y
    Y Y Y
    Y Y Y
```

```

W W W B B B O O O R R R
W W W B B B O O O R R R
W W W B B B O O O R R R
  G G G
    G G G
      G G G

    O G G
      R O Y
        B Y Y
O O W B O O Y R Y B B O
W O W G Y G R B Y O R O
R R W O G B W W Y R Y W
  B Y G
    O W O
      B W Y

    O B B
      G Y O
        B G O
B Y G W R Y Y Y B W W W
O W O W B R Y O R O O R
B W Y Y Y Y G G O O W R
  R O B
    Y R R
      W O O

```

### Sample Output

Case #1: 0

Case #2: 2