Problem B. Sudoku

Time limit 1000 ms
Mem limit 65536 kB
OS   Linux

In the game of Sudoku, you are given a large 9 × 9 grid divided into smaller 3 × 3 subgrids. For example,

```
.  2  7 | 3  8  . | .  1  .
.  1  . | .  .  6 | 7  3  5
.  .  . | .  .  . | .  2  9
--------+---------+--------
3  .  5 | 6  9  2 | .  8  .
.  .  . | .  .  . | .  .  .
.  6  . | 1  7  4 | 5  .  3
--------+---------+--------
6  4  . | .  .  . | .  .  .
9  5  1 | 8  .  . | .  7  .
.  8  . | .  6  5 | 3  4  .
```

Given some of the numbers in the grid, your goal is to determine the remaining numbers such that the numbers 1 through 9 appear exactly once in (1) each of nine 3 × 3 subgrids, (2) each of the nine rows, and (3) each of the nine columns.

Input

The input test file will contain multiple cases. Each test case consists of a single line containing 81 characters, which represent the 81 squares of the Sudoku grid, given one row at a time. Each character is either a digit (from 1 to 9) or a period (used to indicate an unfilled square). You may assume that each puzzle in the input will have exactly one solution. The end-of-file is denoted by a single line containing the word "end".

Output

For each test case, print a line representing the completed Sudoku puzzle.

Sample

Input	Output
.2738..1..1...6735.......293.5692.8...........6.1745.364.......9518...7..8..6534. ......52..8.4......3...9...5.1...6..2..7........3.....6...1..........7.4.......3. end	52738941681942673543675182937569218419453826726817459364: 41683752998246537173512946857129864329374618586435129764795