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[Scheduled Contests](#)  
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 Password:   
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Language:  ▼

## Sudoku

Time Limit: 1000MS

Memory Limit: 65536K

Total Submissions: 10432

Accepted: 3762

## Description

In the game of Sudoku, you are given a large  $9 \times 9$  grid divided into smaller  $3 \times 3$  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  $3 \times 3$  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

```
.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
```

## Sample Output

```
527389416819426735436751829375692184194538267268174593643217958951843672782965341  
416837529982465371735129468571298643293746185864351297647913852359682714128574936
```

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Stanford Local 2006

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[Home Page](#)



[Go Back](#)



[To top](#)

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