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## Minimum cost of a correct parenthesization (2)

P10387\_en

Examen final d'Algorismia, FME (2015-01-16)

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Given a word made up of only opening and closing parentheses and square brackets, we can do two kind of operations:

- Turning the orientation of a parenthesis or a square bracket. That is, we can convert '(' into ')', ')' into '(', '[' into ']', or ']' into '['. The cost is 1.
- Transforming a parenthesis into a square bracket or the other way around, but not changing its orientation. That is, we can convert '(' into '[', ')' into ']', '[' into '(', or ']' into ')'. The cost is 2.

What is the minimum cost of converting a given word into a correct parenthesization? For instance, if the word is ")](", then we can get the correct parenthesization "[()]" by two turns and one transformation, with total cost 4.

### Input

Input consists of several cases. Every case consists of one word with opening and closing parentheses and square brackets. All the words have even sizes between 2 and 100.

### Output

For every case, print the minimum cost of parenthesizing correctly.

### Hint

The expected solution has time cost  $\Theta(n^3)$  and space cost  $\Theta(n^2)$ .

### Sample input

```
()
() []
([()
)[])
][][]
]([
]([
)()([[]
```

### Sample output

```
0
0
1
2
6
4
9
```

### Problem information

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