I. Brackets (8 Mb, 1 sec)

While attending boring lectures, hacker Kirill likes to play an entertaining game. He writes down a random sequence of ***n*** brackets (left and right, round and square). Kirill then tries to make this sequence balanced using a number of simple transformations:

- if a left round bracket is followed by a square one, left or right, they may be swapped: "([" → "[(" or "(]" → "](";
- if a right round bracket is preceded by a square one, left or right, they may be swapped: " [)" → ")[" or "])" → ")]";
- a pair of balanced sequential brackets may be replaced with a pair of brackets of other type "()" → "[]" or "[]" → "()".

For example, it is possible to get two balanced sequences from the sequence "([)]": "[()]" and "()[]".

Note that Kirill stops transformations as soon as he gets a balanced sequence.

Write a program to determine the number of distinct balanced bracket sequences that can be produced from the initial sequence with the use of transformations described above.

Limitations

$n \in \{2, 4, 6, 8, 10, 12\}$.

Input

The input file contains a single line, the initial sequence of brackets.

Output

The output file should contain an integer, the number of distinct balanced bracket sequences that can be produced from the initial one by given transformations.

Sample Input 1	**Sample Output 1**
`()`	`1`
Sample Input 2	**Sample Output 2**
`([)]`	`2`
Sample Input 3	**Sample Output 3**
`]]((`	`0`