

BALANCED PARENTHESES

You are given a string containing just the characters '(', ')', '{', '}', '[' and ']'. Your task is to determine if the input string is valid. An input string is valid if:

1. Open brackets must be closed by the same type of brackets.
2. Open brackets must be closed in the correct order.

Input

An interger N ($N \leq 10$) is the number of testcases

Each of the next N lines contains a string of only brackets S ($0 \leq |S| \leq 10^4$).

Output

true if S is valid, otherwise false.

Sample

Input	Output
1 {[]}	true
2 ([]) {[]}	false true