Let us consider expressions formed by nonnegative integers, the unary operator '`-`', the binary operators '`+`', '`-`', '`*`' and '`/`' and the symbols '`(`' and '`)`'.

Two expressions E and F are isomorphic if E can be obtained from F by replacing some nonnegative integers by others. The expressions $(2+3)*6-(-4)$ and $(7+0)*6-(-8)$ are isomorphic, but neither of them is isomorphic to $(-2+3)*6-(-4)$.

An expression E is balanced if every binary operation in it is applied to two isomorphic expressions. The expressions -5, $(1+2)*(3+5)$ and $((-3)/(-4))/((-1)/(-100))$ are balanced, while $12+(3-2)$ is not.

Given an expression E, check whether it is balanced.

Input

The input consists of several lines with the expressions to be tested, one per line.

Output

The output consists of a separated line for each expression with a single word, either '`YES`' or '`NO`'.

Sample Input

```
(1+2) * (3+5)
```

Sample Output

```
YES
```