

Problem F. Fight

Input file: *standard input*
Output file: *standard output*
Time limit: 1 second
Memory limit: 256 mebibytes

A monster has invaded kingdom of Erathia, and famous hero Solmyr wants to kill it.

Monster initially has h HP. And it will die if HP is less than 1.

Solmyr and monster take turns to do their action. In one round, Solmyr can attack the monster so that the HP of the monster will be reduced by a . At the end of this round, the HP of monster will be increased by b .

After k consecutive round's attack, Solmyr must take a rest in this round. However, he can also choose to take a rest in any round.

Output "YES" if Solmyr can kill this monster, else output "NO".

Input

There are no more than 450 test cases, terminated by a line with four zeroes.

For each test case, the first line contains four integers h, a, b, k ($1 \leq h, a, b, k \leq 10^9$).

Output

For each case, output "YES" if Solmyr can kill this monster, else output "NO".

Example

standard input	standard output
5 3 2 2 0 0 0 0	NO