

E. Generate a String

time limit per test: 2 seconds
memory limit per test: 512 megabytes
input: standard input
output: standard output

`zscoder` wants to generate an input file for some programming competition problem.

His input is a string consisting of n letters 'a'. He is too lazy to write a generator so he will manually generate the input in a text editor.

Initially, the text editor is empty. It takes him x seconds to insert or delete a letter 'a' from the text file and y seconds to copy the contents of the entire text file, and duplicate it.

`zscoder` wants to find the minimum amount of time needed for him to create the input file of exactly n letters 'a'. Help him to determine the amount of time needed to generate the input.

Input

The only line contains three integers n , x and y ($1 \leq n \leq 10^7$, $1 \leq x, y \leq 10^9$) — the number of letters 'a' in the input file and the parameters from the problem statement.

Output

Print the only integer t — the minimum amount of time needed to generate the input file.

Examples

input
8 1 1
output
4

input
8 1 10
output
8