

B. Kids' Riddle

time limit per test: 2 seconds
memory limit per test: 64 megabytes
input: standard input
output: standard output

Programmers' kids solve this riddle in 5-10 minutes. How fast can you do it?

Input

The input contains a single integer n ($0 \leq n \leq 2000000000$).

Output

Output a single integer.

Examples

input
11
output
2

input
14
output
0

input
61441
output
2

input
571576
output
10

input
2128506
output
3