



HOME TOP CATALOG CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS STANDINGS CUSTOM INVOCATION

A. Energy Crystals

time limit per test: 2 seconds memory limit per test: 512 megabytes

There are three energy crystals numbered 1, 2, and 3; let's denote the energy level of the i-th crystal as a_i . Initially, all of them are discharged, meaning their energy levels are equal to 0. Each crystal needs to be charged to level x (exactly x, not greater).

In one action, you can increase the energy level of any one crystal by any positive amount; however, the energy crystals are synchronized with each other, so an action can only be performed if the following condition is met afterward:

• for each pair of crystals i,j, it must hold that $a_i \geq \lfloor \frac{a_j}{2} \rfloor$.

What is the minimum number of actions required to charge all the crystals?

Input

Each test consists of several test cases. The first line contains a single integer t ($1 \le t \le 10^4$) — the number of test cases. The description of the test cases follows.

The only line of each test case contains a single integer x ($1 \le x \le 10^9$).

Output

For each test case, output a single integer — the minimum number of actions required to charge all energy crystals to level x.

Example

input	Сору
7	
1	
5	
14	
2025	
31415	
536870910	
1000000000	
output	Сору
3	
7	
9	
23	
31	
59	

Note

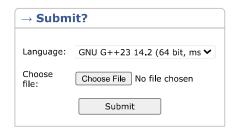
In the first test case, one possible sequence of actions is:

$$[0,0,0] \rightarrow [{\color{red} 1},0,0] \rightarrow [{\color{red} 1},0,{\color{red} 1}] \rightarrow [{\color{red} 1},{\color{red} 1},1]$$

One of the possible sequences of actions in the second test case is:

$$[0,0,0] \to [\textcolor{red}{1},0,0] \to [\textcolor{red}{1},\textcolor{blue}{1},0] \to [\textcolor{red}{1},\textcolor{red}{1},0] \to [\textcolor{red}{1},\textcolor{red}{1},\textcolor{blue}{2}] \to [\textcolor{red}{3},\textcolor{red}{1},\textcolor{blue}{2}] \to [\textcolor{red}{3},\textcolor{red}{5},\textcolor{blue}{2}] \to [\textcolor{red}{5},\textcolor{red}{5},\textcolor{blue}{2}] \to [\textcolor{red}{5},\textcolor{red}{5},\textcolor{blue}{2}] \to [\textcolor{red}{5},\textcolor{red}{5},\textcolor{blue}{5},\textcolor{blue}{5}]$$

Educational Codeforces Round 179 (Rated for Div. 2) Contest is running 01:56:52 Contestant



→ Last submissions		
Submission	Time	Verdict
322675772	Jun/03/2025 17:37	Accepted

