Bruteforce || Greedy

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Let $p(x)$ be a function that converts the number to its prime factors.

example $p(6) = 2 \times 3$

Let $t(x)$ be the number of 2's in its prime factorization.

example

$t(12) = 2$ because $p(12) = 2 \times 2 \times 3$.

You are given a number n, and you are asked to calculate $\sum_{i=1}^{n} t(i)$

Input

The first line contains t – $(1 \leq t \leq 10^5)$ – number of test cases.

For each test case, you will be given n –$(1 \leq n \leq 10^{18})$.

Output

For each test case, output the value of $\sum_{i=1}^{n} t(i)$

Example

standard input	standard output
4 1 4 5 10	0 3 3 8