Project Euler #2: Even Fibonacci numbers

This problem is a programming version of Problem 2 from projecteuler.net

Each new term in the Fibonacci sequence is generated by adding the previous two terms. By starting with 1 and 2, the first 10 terms will be:

$$1, 2, 3, 5, 8, 13, 21, 34, 55, 89, \cdots$$

By considering the terms in the Fibonacci sequence whose values do not exceed N, find the sum of the even-valued terms.

Input Format

First line contains T that denotes the number of test cases. This is followed by T lines, each containing an integer, N.

Constraints

- $1 \leqslant T \leqslant 10^5$
- $10 \leqslant N \leqslant 4 \times 10^{16}$

Output Format

Print the required answer for each test case.

Sample Input

```
2
10
100
```

Sample Output

```
10
44
```

Explanation

- For $N = 10$, we have $\{2, 8\}$, sum is 10.
- For $N = 100$, we have $\{2, 8, 34\}$, sum is 44.