

Evaluate the expression

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Given a number N, write a program to evaluate below expression:

$$f(n-1)*f(n+1) - f(n)*f(n)$$

Input:

First line of input contains a single integer T which denotes the number of test cases. Then T test cases follows. First line of each test case contains a single integer N.

Output:

For each test, print the value after evaluating above expression for N.

Constraints:

$$1 \leq T \leq 100$$

$$1 \leq N \leq 10^5$$

Examples:

Input:

1

5

Output:

-1