A. Permutation Warm-Up

time limit per test: 1 second
memory limit per test: 256 megabytes

For a permutation p of length n*, we define the function:

$$f(p) = \sum_{i=1}^{n} |p_i - i|$$

You are given a number n. You need to compute how many **distinct** values the function $f(p)$ can take when considering **all possible** permutations of the numbers from 1 to n.

*A permutation of length n is an array consisting of n distinct integers from 1 to n in arbitrary order. For example, $[2,3,1,5,4]$ is a permutation, but $[1,2,2]$ is not a permutation (2 appears twice in the array), and $[1,3,4]$ is also not a permutation ($n = 3$ but there is 4 in the array).

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \le t \le 100$). The description of the test cases follows.

The first line of each test case contains an integer n ($1 \le n \le 500$) — the number of numbers in the permutations.

Output

For each test case, output a single integer — the number of distinct values of the function $f(p)$ for the given length of permutations.

Example

input Copy

```
5
2
3
8
15
43
```

output Copy

```
2
3
17
57
463
```

Note

Consider the first two examples of the input.

For $n = 2$, there are only 2 permutations — $[1,2]$ and $[2,1]$.
$f([1,2]) = |1-1| + |2-2| = 0$, $f([2,1]) = |2-1| + |1-2| = 1+1 = 2$. Thus, the function takes 2 distinct values.

For $n = 3$, there are already 6 permutations: $[1,2,3]$, $[1,3,2]$, $[2,1,3]$, $[2,3,1]$, $[3,1,2]$, $[3,2,1]$, the function values of which will be $0, 2, 2, 4, 4$, and 4 respectively, meaning there are a total of 3 values.

→ Submit?

Language: GNU G++23 14.2 (64 bit, ms

Choose file: Choose File No file chosen

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

Submit

→ Last submissions

Submission	Time	Verdict
317961345	May/01/2025 17:39	Pretests passed

→ Score table

	Score
Problem A	492
Problem B	1230
Problem C	1476
Problem D	2214
Problem E	2706
Problem F	3198
Successful hack	100
Unsuccessful hack	-50
Unsuccessful submission	-50
Resubmission	-50

* If you solve problem on 00:04 from the first attempt