Problem on **Modulo Number**

Problem:
In this problem, you have to find the last three digits before the decimal point for the number (3 + sqrt(5))n. For example, when n = 5, (3 + sqrt(5))5 = 3935.73982... The answer is 935. For n = 2, (3 + sqrt(5))2 = 27.4164079... The answer is 027.

Input:
The first line of input gives the number of cases, T. T test cases follow, each on a separate line. Each test case contains one positive integer n.

Output:
For each input case, you should output Y where Y is the last three integer digits of the number (3 + sqrt(5))n. In case that number has fewer than three integer digits, add leading zeros so that your output contains exactly three digits.

Constraints:
2 <= T <= 100
2 <= n <= 2000000000
Compilation time: 10 seconds,
Execution time: 5 seconds. (Do not use brute force technique as that will involve high running time as well as run out of size of datatypes)
Memory usage: 256 MB.

Examples:

Input:
2
5
910062006

Output:
935
607