

Project Euler #25: N-digit Fibonacci number



This problem is a programming version of [Problem 25](#) from [projecteuler.net](#)

The Fibonacci sequence is defined by the recurrence relation:

$$F_n = F_{n-1} + F_{n-2}, \text{ where } F_1 = 1 \text{ and } F_2 = 1$$

Hence the first 12 terms will be:

$$\begin{aligned} F_1 &= 1 \\ F_2 &= 1 \\ F_3 &= 2 \\ F_4 &= 3 \\ F_5 &= 5 \\ F_6 &= 8 \\ F_7 &= 13 \\ F_8 &= 21 \\ F_9 &= 34 \\ F_{10} &= 55 \\ F_{11} &= 89 \\ F_{12} &= 144 \end{aligned}$$

The 12^{th} term, F_{12} , is the first term to contain three digits.
What is the first term in the Fibonacci sequence to contain N digits?

Input Format

The first line contains an integer T , i.e., number of test cases.
Next T lines will contain an integer N .

Constraints

$$\begin{aligned} 1 &\leq T \leq 5000 \\ 2 &\leq N \leq 5000 \end{aligned}$$

Output Format

Print the values corresponding to each test case.

Sample Input

```
2
3
4
```

Sample Output

```
12
17
```