Project Euler #16: Power digit sum

This problem is a programming version of Problem 16 from projecteuler.net

$2^9 = 512$ and the sum of its digits is $5 + 1 + 2 = 8$.

What is the sum of the digits of the number 2^N ?

Input Format

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

Constraints

- $1 \leqslant T \leqslant 100$
- $1 \leqslant N \leqslant 10^4$

Output Format

Print the values corresponding to each test case.

Sample Input

```
3
3
4
7
```

Sample Output

```
8
7
11
```

Explanation

- $2^3 \Rightarrow 8$, sum of digits is 8.
- $2^4 \Rightarrow 16$, sum of digits is 7.
- $2^7 \Rightarrow 128$, sum of digits is 11.