

Base

Description

Shik likes the number a lot. He is a genius of math. He found that number 514 in base 14 consists of three digits: 2, 8, 10. Shik calculated that the sum of digits of 514 in base 14 is equal to 20.

Now he wonders what is the sum of digits of the number A in all bases from 2 to $A - 1$.

Note that all computations should be done in base 10.

Input

The first line contains an integer T indicating the total number of test cases. Each test case contains one line with one integer A .

- $1 \leq T \leq 1000$
- $3 \leq A \leq 1000$

Output

For each test case, please output a line with the $A - 2$ integers separated by a single space, where the i -th integer denoting the sum of digits in base $i + 1$.

Sample Input

2
5
7

Sample Output

2 3 2
3 3 4 3 2