

Sums to calculate

Given an integer n , your task is to compute the following sums:

- The sum S of the n first integers (starting from 1)
- The sum S_{even} of the n first even integers (starting from 2)
- The sum S_{odd} of the n first odd integers (starting from 1)
- The sum S_{squares} of the n first squares of integers (1, 4, 9, ...)
- The sum S_{cubes} of the n first cubes of integers (1, 8, 27, ...)

Input

The first line of the input contains an integer T denoting the number of test cases. The description of T test cases follows. Each test case is described in a single line containing the integer « n » ($1 \leq n \leq 10^4$).

Output

For each test case, print a single line containing five space-separated integers: S S_{even} S_{odd} S_{squares} S_{cubes}

Example

Input:

```
3
4
5
6
```

Output:

```
10 20 16 30 100
15 30 25 55 225
21 42 36 91 441
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