

Project Euler #61: Cyclical figurate numbers

Problem Statement

This problem is a programming version of [Problem 61](#) from [projecteuler.net](#)

Triangle, square, pentagonal, hexagonal, heptagonal, and octagonal numbers are all figurate (polygonal) numbers and are generated by the following formulae:

Triangle	$P_{3,n} = \frac{n \times (n + 1)}{2}$	1, 3, 6, 10, 15, ...
Square	$P_{4,n} = n^2$	1, 4, 9, 16, 25, ...
Pentagon	$P_{5,n} = \frac{n \times (3n - 1)}{2}$	1, 5, 12, 22, 35, ...
Hexagon	$P_{6,n} = n \times (2n - 1)$	1, 6, 15, 28, 45, ...
Heptagon	$P_{7,n} = \frac{n \times (5n - 3)}{2}$	1, 7, 18, 34, 55, ...
Octagon	$P_{8,n} = n \times (3n - 2)$	1, 8, 21, 40, 65, ...

The ordered set of three 4-digit numbers: 8128, 2882, 8281, has three interesting properties.

- The set is cyclic, in that the last two digits of each number is the first two digits of the next number (including the last number with the first).
- Each polygonal type: triangle ($P_{3,127} = 8128$), square ($P_{4,91} = 8281$), and pentagonal ($P_{5,44} = 2882$), is represented by a different number in the set.
- This is the only set of 4-digit numbers with this property.

You are given a set of numbers $N \in \{3, 4, 5, 6, 7, 8\}$ find the sum of 4 – *digit* numbers from N – *gonal* sets that respect the above property. If there are multiple such numbers print their sums in sorted order.

Input Format

First line of input contains a number T .

Second line contains set of T numbers each separated by a space.

Output Format

Print the answer corresponding to the test case.

Constraints

$$3 \leq T \leq 6$$

Sample Input

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3
3 4 5
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Sample Output

