Project Euler #61: Cyclical figurate numbers

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

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
$3 \le T \le 6$

Sample Input

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3
3 4 5
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Sample Output

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19291
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