Project Euler #61: Cyclical figurate numbers

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.

**Constraints**

\( 3 \leq T \leq 6 \)

**Output Format**

Print the answer corresponding to the test case.

**Sample Input**

3
3 4 5

**Sample Output**

19291