Problem D. Delicate Team Formation

This is another problem about teams. There are $3n$ students in Anonymous University, who are willing to participate in an ICPC contest. For convenience, let's give an integer number for each student, from 1 to $3n$. Each student has a *strength* that is measured by an integer – more specifically, student i has strength a_i.

The university is planning to make exactly n teams, each consisting of 3 students. Therefore, each student belongs to exactly one team.

The university wants to maximize the total sum of strength of each team. The *strength of a team* is defined by the ***second*** *largest strength* among its members, because it is the median of strengths. For example, a team that has members with strength 5, 1 and 2 has strength 2, and a team that has members with strength 7, 2 and 7 has strength 7.

Given the strength of each students, write a program that calculates the maximum possible sum of the strengths of newly formed n teams.

Input

Your input consists of an arbitrary number of records, but no more than 3.

Each record consists of two lines. The first line contains only an integer n $(1 \leq n \leq 100{,}000)$. The second line contains $3n$ integers $a_1, a_2, \ldots, a_{3n}$ $(1 \leq a_i \leq 10^9)$, each separated by a space.

The end of input is indicated by a line containing only the value -1.

Output

For each input record, print a line that contains calculates the maximum possible sum of the strengths of n teams.

Example

Standard input	Standard output
2 1 5 2 8 5 5 3 10 10 10 10 10 10 10 10 10 -1	10 30

Explanation of the example

For the first example: If we make teams with students (1,2,5) and (3,4,6), the strength of each team is 5 and 5, so the sum becomes 10.

Time Limit

2 seconds.