

Village And Water

During the summer season, the government needs to distribute water to **N** villages. Since each village has a different population, the water requirement is also different. There is only one water tanker available for this task and it can make a maximum of **M** trips from the water source to the villages. (The tanker can visit the same village multiple times)

Any extra water left in the tanker is spilled over. The tanker should be designed such that the capacity of the tanker is the minimum possible in order to send water to the villages within the **M** trips. Your task is to find the **spillage that happens** if we use a tanker with the **minimum possible capacity** that can deliver the required amount of water to each village within the given number of trips.

Input Format:

Each input contains the following :

N- First-line contains a number of villages. ($0 < N \leq 10^7$)

Next line contains array **A** of size N, where each $A[i]$ represents the water need of each village. ($0 \leq A[i] \leq 10^5$)

M - Next-line has a single integer representing the maximum number of trips a tanker has to do ($0 \leq M \leq 10^6$)

Output Format:

- A single integer representing the total amount of spillage that happened.
- If water cannot be delivered by following all the conditions then print **-1**.

Sample Test Cases:

Input:

5

4 3 5 2 1

7

Output:

6

Explanation:

We will use a tanker with capacity 3, as it is the tanker with minimum capacity which can fulfill the requirement. Then the total spillage is 2 (1st village, in second trip) + 0 (2nd village) + 1 (3rd village, in second trip) + 1 (4th village) + 2 (5th village) = 6

Input:

5

4 3 5 2 1

4

Output:

-1

Explanation:

By no way in 4 trips water can be given to all villages.