Ranking sums P21654_en

You are given n integer numbers. If you compute all the $\binom{n}{2}$ sums of any two of those numbers, and you sort them all, which is the k-th of those sums?

For instance, if $n = 3$ and you are given the numbers 6, 6, and 4, you can make three sums: $6 + 6 = 12$, $6 + 4 = 10$, and $6 + 4 = 10$. Therefore, the first of those sums is 10, the second is 10, and the third is 12.

Input

Input consists of several cases, each with k and n, followed by the n numbers, all between 1 and 10^8. Assume $2 \leq n \leq 4 \cdot 10^4$ and $1 \leq k \leq \binom{n}{2}$.

Output

For every case, print the k-th sum of all the pairs of numbers.

Sample input 1

```
1 3  6 6 4
2 3  6 6 4
3 3  6 6 4
1 2  1 100000000
1 4  10 10 10 10
6 4  10 10 10 10
```

Sample output 1

```
10
10
12
100000001
20
20
```

Problem information

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