Rubrik Test

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2. Power the Cluster

Rubrik being a data-backup and security company has a data-center where it has kept all the clusters. We are setting up a data-center in India.

There are N clusters present in our India data-center, arranged in a straight line. These N clusters are present at positions $\text{pos}_1, \text{pos}_2, \ldots, \text{pos}_N$ respectively. Currently, all of them are powered off. All the clusters are at distinct positions.

To begin backups of the customer's data to our data-center, we will be required to power on at least M clusters. Alice is currently at position 0. She can move along the straight line at speed 1 and when at the same position as that of a cluster, in negligible time, she can power up the cluster.

She needs to find the minimum time in which the customer's data can begin to back up.

Input Format

- The first line of input contains two space-separated integers N and M.
- The second line of input contains N space-separated integers $\text{pos}_1, \text{pos}_2, \ldots, \text{pos}_N$.

Output Format

Print exactly one integer which represents the minimum time in which the customer's data can begin to back up.

Constraints

- $1 \leq N \leq 10^5$
- $1 \leq M \leq N$
- $1 \leq |\text{pos}_i| \leq 10^8$