CLEANING GARDEN

Hana's mother asks Hana to clean the garden by weeding the grasses. However, Hana is so lazy and only want to go play games with her friends rather than help her mother. So, to avoid her mother's grumpiness, Hana decides to weed k continuous grass before leaving.

Let the i-th grass has the coordinate x_i, and Hana is standing in original coordinate, please help Hana to calculate the minimum distance she has to move.

Input

The first line contains the integer n ($1 \leq n \leq 10^5$) and the integer k ($1 \leq k \leq n$) – the total number of grasses in Hana's garden and the number of grasses Hana wants to remove.

Next line contains n integers x_i ($/x_i/ \leq 10^9$) describe the coordinates of n grasses.

Output

The minimum distance Hana has to move

Examples

Standard Input	Standard Output
5 3 -3 -1 1 2 5	4