Mirko's newest math homework assignment is a very difficult one! Given a sequence, **V**, of **N** integers, remove exactly **K** of them from the sequence. Let **M** be the largest difference of any two remaining numbers in the sequence, and **m** the smallest such difference. Select the **K** integers to be removed from **V** in such a way that the sum **M** + **m** is the smallest possible. Mirko isn't very good at math, so he has asked you to help him!

INPUT

The first line of input contains two positive integers, **N** ($3 \leq \mathbf{N} \leq 1\,000\,000$) and **K** ($1 \leq \mathbf{K} \leq \mathbf{N} - 2$).

The second line of input contains **N** space-separated positive integers – the sequence **V** ($-5\,000\,000 \leq \mathbf{V}_i \leq 5\,000\,000$).

OUTPUT

The first and only line of output must contain the smallest possible sum **M** + **m**.

SAMPLE TESTS

input	**input**	**input**
5 2 -3 -2 3 8 6	6 2 -5 8 10 1 13 -1	6 3 10 2 8 17 2 17
output	**output**	**output**
7	13	6