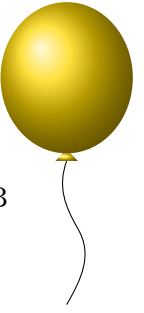


D Wizard

TIME LIMIT: 4.0s
MEMORY LIMIT: 1024MB



The wizard Casarino possesses n magical potions arranged in a sequence. Each of the n potions has a given power a_i . Casarino wants to combine these potions into a single one to cast a powerful spell. To do this, he must first choose exactly k out of the n potions and discard the rest. That is, Casarino selects k potions, discards the others, and does not change the order of the selected ones. He then repeatedly combines the selected k potions until only one remains.

To avoid as many accidents as possible during the process, the Wizards' International Congress has adopted strict rules on how potions can be combined. According to these rules, on each step, the wizard can only do one of the two possible operations:

- Take the last potion in the sequence and pour it entirely into the bottle containing the first potion. In this case, the power of the first potion becomes the difference between the powers of the first and the last potion. That is, if the first potion has power x and the last potion has power y , this operation removes the last potion from the sequence and sets the first potion's power to $x - y$.
- Take the first potion in the sequence and pour it entirely into the bottle containing the last potion. In this case, the power of the last potion becomes the difference between the powers of the last and the first potion. That is, if the first potion has power x and the last potion has power y , this operation removes the first potion from the sequence and sets the last potion's power to $y - x$.

In both cases, one potion is consumed, meaning the number of potions in the sequence decreases by one. On each step, Casarino may choose freely which of the two operations to perform. He repeats this process exactly $k - 1$ times, until only one potion remains.

Since Casarino wants to summon the most powerful spell possible, he is interested in the maximum possible power of the final remaining potion after performing the operations optimally. Casarino is one of the greatest wizards in the world, and if you help him, he will cast a spell that grants you Accepted on this problem.

INPUT

The first line contains two integers, n and k ($2 \leq k \leq n \leq 2 \cdot 10^5$).

The second line contains n integers a_1, a_2, \dots, a_n : the powers of the potions ($|a_i| \leq 10^9$).

OUTPUT

The first and only line should contain a single integer: the maximum possible power of the potion that can remain in the sequence after all operations have been performed.

SAMPLES

Sample input 1	Sample output 1
3 2 5 3 2	3