

Entropy

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Dictator S looks at his N chemical weapons, which he created to protect Assistant Y. Each of which has a entropy level E_i , and it is given $E_{i+1} \geq E_i$. In other words, the array E is **non-decreasing**. He evaluates the weakness of his weapons as the sum of the absolute difference between of the entropy level of neighbouring weapons. For example, 4, 6, 8, 9 has a weakness $(6 - 4) + (8 - 6) + (9 - 8) = 5$.

Dictator S has K units of time. In 1 unit of time, he can (optionally) change the entropy level of a weapon. Help dictator S find the minimum possible weakness of his weapons after K units of time!

Input

The first line of input contains 2 integers, N and K ($1 \leq K \leq N \leq 10^5$).

The second line of input contains N integers, the i^{th} integer representing E_i ($1 \leq E_i \leq 10^9$).

Output

Output a single integer, the minimum total weakness of the weapons.

Scoring

Subtask	Score	N	Additional constraints
1	5	$N \leq 20$	-
2	10	-	The fighting power is non-increasing
3	18	-	$K = 1$
4	31	$N \leq 1000$	-
5	36	-	-
6	0	Sample Testcases	

Examples

standard input	standard output
5 2 1 3 5 200 15000	4
6 1 1 17 17 17 17 17	0
2 2 16 200	0

Note

Sample testcase explanation:

Testcase 1: 1, 3, 5, 5, 5

Testcase 2: 17, 17, 17, 17, 17, 17

Testcase 3: 21, 21 (Note there is more than 1 possible solution)