

C	Canvasia	
	Time Limit (seconds)	1
	Memory Limit (MB)	256

In the world of "Canvasia," everything is art, and you are the painter tasked with restoring the world's fading and cracked canvas.

The key to this restoration is the "Primeval Palette" — a perfectly balanced set of colors. The power of this palette is measured by its "Color Harmony," which is defined by its contrast: the difference between the brightest and darkest colors. The lower the contrast, the higher the healing power.

Your Resources

- n color tubes: Each has an integer brightness $[i]$ value (unsorted, duplicates are possible).
- k units of magic ink Your budget for adjusting the brightness values.

Rules of Adjustment

- You can change the brightness of any tube to any new integer value.
- The cost of an adjustment is the absolute difference between the original and new values (e.g., changing from 10 to 8 costs $|10 - 8| = 2$).
- You can perform any number of adjustments on any number of tubes, as long as the total cost does not exceed your budget, k .

Objective

Find the minimum possible contrast (maximum brightness - minimum brightness) you can achieve within the given budget k .

INPUT

- The first line contains two integers n (the number of color tubes) and k (the magic ink budget).
- The second line contains n integers, representing the brightness of each color tube.

Constraints

- $1 \leq n \leq 10^5$
- $1 \leq \text{brightness}[i] \leq 10^6$
- $0 \leq k \leq 10^9$

OUTPUT

A single integer representing the minimum achievable contrast.

Input	Output
5 7 1 2 4 8 10	4
4 10 1 5 9 13	3
3 15 10 10 10	0
2 3 1 100	96