Easy Practice Problem

VINH loves solving problems so much. One day, VINH met a challenging problem: " Given n points on the Oxy plane: the coordinate of the i-th point is $(2019 - a_i, 2a_i)$. Find two points having the largest distance among all pairs of points and print square of that distance."

After 10 tireless days of researching, VINH finally came up with the formula of distance between two points on the Oxy plane. In case you may not know, VINH gladly shows you now: The square of distance between point (x, y) and (x', y') is $(x - x')^2 + (y - y')^2$. From that genius idea, VINH coded a genius solution. Unfortunately, the code is too long to write here but VINH still proudly tells you the core idea here: Checking all pairs of points and find the optimal pair. The formula's proof and coding part are left as exercises for the reader!

Shockingly, VINH realized that the problem's constraint is $n \leq 10^5$. But like the last time, it didn't take VINH a long time to think of another genius idea: randomness. Sound horror? Don't worry! VINH's new solution is here for you: Choosing k out of n points randomly and using the above code for those k points. But how do we choose k? Well, after 9954 experiments, VINH can confidently tell you that k should not exceed 5000.

Not too surprise, VINH sees the code giving wrong answers sometimes. But it does not matter since VINH has finished this challenging problem. Now it's your opportunity to apply your learned skills and lessons from VINH's problem-solving process. Here is your practice problem: Find the expected printing value of VINH's above code. Too easy, right? Don't worry! VINH won't give you any hint to keep your joy of problem-solving intact.

Input

The first line of the input contains 2 positive integers n, k $(1 \leq n \leq 10^5, 1 \leq k \leq \min(5000, n))$ – the n and k in VINH's code.

The next line contains n integer numbers $a_i (1 \leq a_i \leq 10^9)$, the information of points.

Output

Print one number, the expected printing value of VINH's code. VINH lets you know that the value can be written in form P/Q (Is it considered a hint? If yes, VINH apologizes you). You need to print $PQ^{-1} \ mod \ 10^9 + 7$.

Examples

Standard Input	Standard Output
4 3 1 2 3 4	500000036
2 2 2 3	5

Explanation:

In the first sample, there are 4 different triples can be chosen:

+ (1, 2, 3): The points are (2018, 2), (2017, 4), (2016, 6). The largest distance is between (2018, 2) and (2016, 6). Printing value is its square: $2^2 + 4^2 = 20$.

+ (1, 2, 4): Printing value is 45.

+ (1, 3, 4): Printing value is 45.

+ (2, 3, 4): Printing value is 20.

The expected value is (20+20+45+45) / 4 = $\frac{65}{2}$.