Tug of war

Input file:	`stdin`
Output file:	`stdout`
Time limit:	1 second
Memory limit:	256 megabytes

In Hillside Village, a traditional tug of war tournament takes place. Since there's no horizontal field in the whole village, the game is played on a slope of a hill. The hill's steepness is represented by a coefficient $q > 1$. There are N players starting in the tournament, numbered 1 to N from youngest to oldest. Player number i has strength s_i.

At the start of tournament, all players are active. The tournament consists of several matches. All active players play in a match. At the start of a match, they split into 2 teams: the *upper* team (on the top of the hill) consists of the K oldest players; the *lower* team consists of the rest. A team's strength is the sum of strengths of all its players. The upper team has an obvious disadvantage; the win iff their strength is strictly larger than q times the lower team's strength. The tournament ends as soon as the upper team wins.

After each match, one player stops being active. The natives noticed that it's always either the youngest active player (who has to go home) or the oldest active player (who visits the buffet). The value of K remains unchanged, so if the oldest player leaves, then the oldest player of the lower team automatically switches teams. (Notice that if such a player doesn't exist, then the tournament would end anyway.)

The input contains the number of players N, their strengths $s_{1..N}$, the coefficient of hill's steepness q and the size of the upper team K. Write a program which computes the maximum number of matches that could be played. In other words, it's supposed to find such an order of leaving players, for which the upper team wins for the first time as late as possible.

Input

The first line of the input contains integers N, K $(1 \leq K \leq N)$ and a real number q.

The next line contains N positive integers: s_1 to s_N.

Output

Print a single integer - the maximum possible number of played matches.

Examples

stdin	stdout
5 2 1.01 40 70 1000 30 20	4
12 7 2.0 2 4 9 5 3 3 4 8 8 6 1 6	4

Note

In all tests, $N \leq 5 \cdot 10^5$, $s_i \leq 10^9$ for all $1 \leq i \leq N$, $q \leq 1000$. Furthermore, q is given up to 3 decimal places.