Cow Cars

N ($1 \le N \le 50,000$) cows conveniently numbered 1, ..., N are driving in separate cars along a highway in Cowtopia. Cow i can drive in any of M different high lanes ($1 \le M \le N$) and can travel at a maximum speed of S_i ($1 \le S_i \le 1,000,000$) km/hour.

After their other bad driving experience, the cows hate collisions and take extraordinary measures to avoid them. On this highway, cow i reduces its speed by D ($0 \le D \le 5,000$) km/hour for each cow in front of it on the highway (though never below 0 km/hour). Thus, if there are K cows in front of cow i, the cow will travel at a speed of $\max(S_i - D*K, 0)$. While a cow might actually travel faster than a cow directly in front of it, the cows are spaced far enough apart so crashes will not occur once cows slow down as described.

Cowtopia has a minimum speed law which requires everyone on the highway to travel at a a minimum speed of L ($1 \le L \le 1,000,000$) km/hour, so sometimes some of the cows will be unable to take the highway if they follow the rules above. Write a program that will find the maximum number of cows that can drive on the highway while obeying the minimum speed limit law.

Input

The first line contains the four integers N, M, D, and L. For the next N lines, line i+1 contains the integer S_i.

Output

Print a single integer denoting the maximum number of cows that can take the highway.

Example

Input:
3 1 1 5
5
7
5

Output:
2

We can obtain two cows by putting either cow with speed 5 first and the cow with speed 7 second.