PROBLEM C. GOVERNMENT BUDGET

Time limit: 1 second

The government has m national key projects. Every day project i consumes s_i million VND.

To limit the impact of the economic downturn, the government decided to launch n stimulus packages, each worth p million VND for the national key projects. Package j will start disbursing from day r_j. If it is given to project i then after t_i days, the package will be fully spent where t_i is the lowest integer not lower than $\frac{p}{s_i}$. Each stimulus package must be given as a whole to a key project. Each project can receive multiple packages but they must finish spending a package before receiving another. It is not allowed to consume from more than 1 package within the same day.

The stimulus packages must be spent as soon as possible. The minister requests to know the earliest possible time to spend all of them. Your task is to help them calculate this number.

For example, if there are 2 projects with daily cost 2 and 5 million VND respectively and 4 stimulus packages, each worth 22 million, allowed to be disbursed starting from day 1, 3, 8 and 12. 17 days will be the earliest for all packages to be fully spent.

You are given m, n, p, s_i and r_i ($1 \le m, n \le 100, 1 \le p, s_i, r_i \le 10\text{^}9$). Find the least number of days to spend all the packages.

Input

The first input line contains three integers m, n, p.

The second line contains m integers $s_1, s_2, \dots, s_m$.

The third line contains n integers $r_1, r_2, \dots, r_n$.

Output

Output the least number of days to spend all the packages.

Sample

INPUT	OUTPUT
2 4 22 2 5 1 3 8 12	17