Problem I. Binary Supersonic Utahraptors

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	512 mebibytes

Alexey and Boris are playing a game called *Binary Supersonic Utahraptors* (BSU).

Initially, Alexey has n utahraptors, and Boris has m utahraptors. Each utahraptor is either yellow or red.

Then, the players take k turns described by integers $s_1, s_2, \ldots, s_k$. The i-th turn is performed as follows. First, Alexey chooses s_i utahraptors that belong to him and gives them to Boris. Then, Boris chooses s_i utahraptors that belong to him (the utahraptors that Alexey has just given to him may also be chosen) and gives them to Alexey.

When the k moves are done, the score of the game is calculated. The score is equal to $|a_y - b_r|$, where a_y is the number of yellow utahraptors Alexey has, and b_r is the number of red utahraptors Boris has. Alexey's goal is to minimize the score, and Boris wants to maximize it.

Write a program that calculates the score of the game if both players use their optimal strategies.

Input

The first line contains three integers n, m, k, the number of utahraptors obtained by Alexey, the number of utahraptors obtained by Boris, and the number of turns in the game ($1 \le n, m, k \le 3 \cdot 10^5$).

The second line contains n integers a_i, denoting Alexey's utahraptors ($0 \le a_i \le 1$). If $a_i = 0$, then the i-th utahraptor is yellow, otherwise the i-th utahraptor is red.

The third line contains m integers b_i, denoting Boris's utahraptors in the same manner as described above ($0 \le b_i \le 1$).

The fourth line contains k integers s_i, describing the numbers of utahraptors that players give to each other on the i-th turn ($1 \le s_i \le \min\{n, m\}$).

Output

Print the score of the game if both players play optimally.

Example

standard input	standard output
2 3 1 0 0 1 1 1 2	1