2023 FORK

The spies of *Alpha Complex* and *Beta Complex* enjoy a healthy rivalry. Many a quarrel between the two has been settled by the losing complex catering an extravagant dinner for the winner. Many a table has been turned by incomprehensible etiquette leading to the dining spies being unable to indulge in the feast.

A long rectangular dining table has been set up, with n evenly spaced seats on two opposite sides. At every position on the table is an impressive choice of m items of cutlery; the same for each position. One spy sits at each position at the table, holding in their hand a single piece of cutlery and contemplating whether it is the correct one to use to eat their starter, whilst aiming to look suave, sophisticated and not too desperate.

Each spy carefully watches their neighbours: the spy immediately on either side and the spy directly across the table. Spies trust only the opinion of neighbours who hold the same piece of cutlery as themselves. If they see a trusted neighbour switch to a different piece of cutlery they will immediately follow their example and switch to the same. Spies are very hungry so any cascading effect happens instantaneously.

Only the first spy in the first row is brave enough to change their mind without following the example of a neighbour. The catering complex would like to know, once the spies stop changing their mind, how many (including the first spy) have chosen the same piece of cutlery as the trendsetter.

For example, suppose that the cutlery initially selected by our spies is $\begin{matrix}1333\\2121\end{matrix}$

- If the first spy changes their mind $1 \to 2 \to 1 \to 2 \to 1 \to 3$ the table will change $\begin{matrix}1333\\2121\end{matrix} \to \begin{matrix}2333\\2121\end{matrix} \to \begin{matrix}1333\\1121\end{matrix} \to \begin{matrix}2333\\2221\end{matrix} \to \begin{matrix}1333\\1111\end{matrix} \to \begin{matrix}3333\\3333\end{matrix}$
- After the first spy has changed their mind twice (from their starting decision), 4 spies have chosen `1`;
- After they've changed their mind five times, 8 spies have chosen `3`.

SAMPLE INPUT

```
6 4 5
4 3 3 3 4 3
2 1 2 1 4 3
2 1 2 1 3
```

The first line of the input will consist of three integers, n ($1 \le n \le 2^{20}$) then m ($1 \le m \le 2n$) then c ($1 \le c \le 2^{20}$), indicating the number of seats (on each side), items of cutlery and number of times the first spy changes their mind respectively. The next 2 lines will each consist of n integers (each between 1 and m), indicating the item of cutlery that the spy in each seat has initially picked up. The final line will contain c integers indicating the first spy's changes of mind.

SAMPLE OUTPUT

```
10
```

You should output a single integer, indicating the number of spies who have selected the same item of cutlery as the first spy.