# DMPG '16 S3 - The Faster Way

**Time limit:** 1.0s     **Memory limit:** 64M

The Toronto Transit Commission is staking their image on being *The Faster Way* to get around Toronto, with a reputation for *speedily* getting commuters to their destination.

A particular bus route consisting of $N$ stops starts at station $0$ and ends at station $N - 1$. At present, there are $M$ passengers waiting for a bus in station $0$, with the $i$-th commuter wishing to get off at stop $S_i$. Conveniently, it turns out that each passenger wants to get off at a **different** station.

As station manager at station $0$, your job is to get them to their destinations as quickly as possible.

Two buses have arrived, a regular bus and a *Rocket* bus. The regular bus will stop at any station on the route as long as a passenger wishes to get off. The Rocket bus will only stop at $R$ of the $N$ stops, and only if someone wishes to disembark. Whenever a bus stops, it spends $1$ minute letting people get off. These are also really fast buses we are talking about, such that it takes no time for a bus to move from one station to the next.

You would like to minimize the total amount of time passengers spend riding *The Faster Way* (lest it be branded *The Slower Way*) by optimally assigning passengers at station $0$ to either the regular bus or the Rocket. How much time will the passengers have spent cumulatively before they reach their destinations, if you do your job properly?

## Scoring

For all cases, $1 \le M \le N$ and $0 \le R \le N$.

**Subtask 1 [20%]**

$1 \le N \le 10$

**Subtask 2 [30%]**

$1 \le N \le 20$

**Subtask 3 [50%]**

$1 \le N \le 100\,000$

## Input Specification

The first line of input will contain the integers $N$, $R$ and $M$.
The next line of input will contain $R$ integers in the range $0 \ldots N - 1$, representing which of the $N$ stops the Rocket stops at. The stops will be pairwise distinct.
The last line of input will contain $M$ integers, with the $i$-th representing $S_i$. These values will be pairwise distinct.

## Output Specification

The minimum cumulative time taken by commuters to get to their destinations.

## Sample Input

```
3 2 2
1 2
1 2
```

## Sample Output

```
2
```

## Explanation

Assign the first passenger to the regular bus, and the second to the Rocket bus. The total amount of time they will spend together is 2 minutes, and they will both be off at their stations after 1 minute.