

[I] Cards

Time limit: 1 second
Memory limit: 65535 kBytes

Description

The children gathered for an afternoon of games, each bringing their own deck of cards. All decks are identical, and each contains N distinct cards.

At the end of the day, the parents collected all the cards into a single pile. As often happens, some cards may have been lost, and some unfamiliar cards (not belonging to any of the original decks) may have been mixed in during play. The parents want to buy replacements for any missing cards so that each child can have a complete deck again. Help them determine how many new cards they need to purchase.

Input

The first line contains the number of test cases T .
Each test case contains the following data:

- K, N, M are three integers
 - K – the number of children, i.e., the number of complete decks the parents want to put together.
 - N – the number of different cards in the deck.
 - M – the number of cards in the pile.
- The next line contains the cards in the deck (N cards) separated by a space.
- The next line contains the M cards in the pile separated by a space.

Output

A single integer for each test case, the number of additional cards required to make K complete decks.

Constraints

- $1 \leq T \leq 10$
- $1 \leq K \leq 10^9$
- $1 \leq N \leq 10^3$
- $1 \leq M \leq 10^5$

- Each card is represented by a string of up to 10 characters, containing only letters from the English alphabet.

Example

Input

```
3
3 2 4
a b
a a b a
2 3 10
cat dog fish
cat cat cat dog fish dog fish dog fish cat
3 2 5
car ship
train ship car car bus
```

Output

```
2
0
3
```