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1828. Minimal

Total: 2081 Accepted: 707 Rating: 4.1/5.0(8 votes) 0 ▼

Description

Time Limit: 1sec Memory Limit: 32MB

There are two sets S_1 and S_2 subjecting to:

(1) S_1, S_2 are both the subsets of $\{x \mid x \text{ is an integer and } 0 \leq x \leq 1,000,000\}$

(2) $0 < |S_1| \leq |S_2| \leq 500$

$F(S_1, S_2) = \min \{|a_1 - b_1| + |a_2 - b_2| + \dots + |a_N - b_N|\}$

in which $a_i \in S_1, b_i \in S_2$

$a_i \neq a_j$ if $i \neq j$

$b_i \neq b_j$ if $i \neq j$

($i, j = 1, 2 \dots N, N = |S_1|$)

Input

The first line contains an integer indicating the number of test cases.

For each test case, there are two integers N and M in the first line. N is the number of elements in S_1 while M is the number of elements in S_2 . There are $N+M$ lines that follow. In the first N lines are the integers in S_1 , while the last M lines S_2 . There is NO blank line between two cases.

Output

For each test case, print the result of $F(S_1, S_2)$, one case per line. There is NO blank line between two cases.

Sample Input

[Copy](#)

```
1
2 3
30
20
50
10
40
```

Sample Output

[Copy](#)

```
20
```

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