Rallye

Lea participates in this year's "Rallye Absurdistan". There is a challenging track through cities, forests and deserts and Lea wants to finish as fast as possible.

The rallye is a little extraordinary since the participants are allowed to switch their vehicles at certain checkpoints. Each driver may bring a rallye car and a motocross bike to switch between depending on the track. The rallye lasts some days and you may switch the vehicle without time loss between days. Each day has a certain number of checkpoints (the same for each day of the rallye) and to switch the vehicle you need some minutes. For logistic reasons you are only allowed to switch the vehicle at one checkpoint per day, but you are allowed to switch every night no matter whether you switched at one of the checkpoints that day.

Lea tested the complete track and knows all times she needs with each vehicle. What is the best time she could need to finish the rallye?

Input

The first line of the input contains an integer t. t test cases follow, each of them separated by a blank line.

Each test case starts with a line containing the three space-separated integers d, c and m where d is the number of days the rallye lasts, c is the number of checkpoints per day, and m is the number of minutes Lea needs to switch vehicles. One lines follows containing $d \cdot (c + 1)$ integers describing the times Lea needs with her rallye car between the start/end points of each day and the checkpoints. Another line follows containing $d \cdot (c + 1)$ integers describing the times Lea needs with her motocross bike between the start/end points of each day and the checkpoints.

Output

For each test case, output one line containing "Case #i: x" where i is its number, starting at 1, and x is the optimal time Lea needs to finish the rallye. Each line of the output should end with a line break.

Constraints

- $1 \leq t \leq 20$
- $1 \leq d \leq 10^4$
- $1 \leq c \leq 10$
- m and all other times are between 1 and 10^3 inclusively.

Sample Explanation

In the first sample the rallye has 2 days with 1 checkpoint each. To switch vehicles Lea needs 10 minutes. On the first day it is best to stick to the rallye car which takes $90 + 90 = 180$ minutes. On the second day it is best to start with the motocross bike and take 61 minute to the first checkpoint. Then switch to the rallye car and arrive at the finish line after 43 more minutes. This takes $61 + 10 + 43 = 114$ minutes on the second day which is $180 + 114 = 294$ minutes in total.

In the second sample it is better to stick to the motocross bike on the second day resulting in a total time of 293 minutes.

Sample Input 1

```
2
2 1 10
90 90 75 43
95 98 61 67

2 1 10
90 90 75 43
95 98 61 52
```

Sample Output 1

```
Case #1: 294
Case #2: 293
```

Sample Input 2

```
7
2 2 71
31 83 97 86 96 17
95 28 97 95 20 76

2 1 69
98 71 40 74
75 94 36 62

3 1 24
25 92 64 79 39 48
99 78 67 76 7 15

2 2 34
74 96 93 37 37 82
22 92 43 58 3 21

2 2 49
33 91 37 4 75 37
8 80 35 7 1 68

2 1 1
85 4 62 21
44 78 57 60

2 2 6
31 30 80 41 84 31
30 31 85 47 71 16
```

Sample Output 2

```
Case #1: 402
Case #2: 267
Case #3: 282
Case #4: 239
Case #5: 199
Case #6: 128
Case #7: 275
```