minutes and the second bus of service #1 and it will arrive at the destination at time 160.

- Wait 10 minutes, take the service #0. Get off at bus stop 24 at time 34 and walk to the destination. They will arrive at $34 + 6 \times 15 = 124$.
- Wait 10 minutes, take the service #0. Get off at bus stop 24 at time 34. Walk to bus stop 25. They will arrive at bus stop 25 at $34 + 1 \times 15 = 49$. They have to wait until time 90 to take the second bus of service #3. They will arrive at the destination at time 95.
- Wait 10 minutes, take the service #0. Get off at bus stop 12 at time 22. Walk to bus stop 15. They will arrive at bus stop 15 at $22 + 3 \times 15 = 67$, just on time for them to catch the first bus of service #2 leaving bus stop 15 at time 68. They will arrive at the destination at time 83.

Your task is to find the optimal option for each of these purposes:

- The earliest arrival time.
- The earliest arrival time and the walking distance does not exceed X Km.
- The earliest arrival time and the number of bus taken does not exceed Y.
- The earliest arrival time, the walking distance does not exceed X Km and the number of bus taken does not exceed Y.

Input

The first line of the input contains number T ($T \leq 100$). Then, T test cases follow:

- The first line contains number M, X, Y ($0 \leq M \leq 10, 0 \leq X \leq 30, 0 \leq Y \leq M$).
- Each of the next M lines contains information of each bus service: start time of first bus S, frequency F. Followed by N numbers describe N stops. These numbers are listed in increasing order. ($1 \leq S \leq 1000, 1 \leq F \leq 1000$)

Output

For each test case, you should print the earliest arrival time of 4 options (in minutes). If there is no option, print -1 instead.

Sample

Sample input	Output for sample input

`2`
`4 1 1`
`10 60 0 5 12 18 24`
`26 120 16 20 24 30`
`68 120 15 30`
`30 60 25 26 27 28 29 30`
`1 1 1`
`1 1 1 29`
	`83 95 124 -1`
	`59 -1 59 -1`