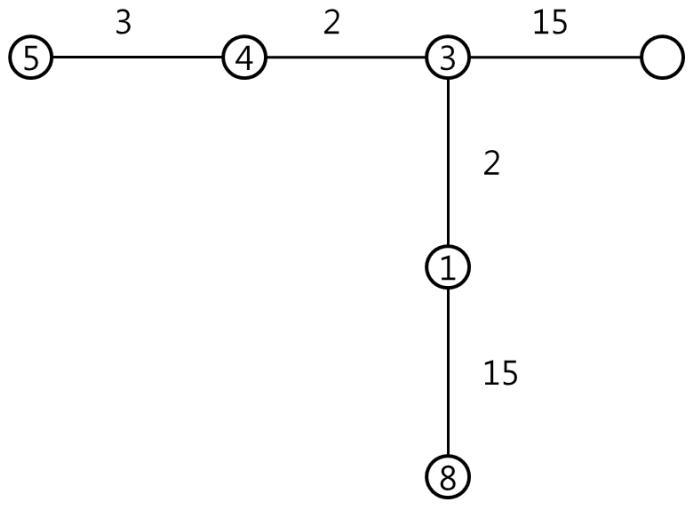
Intersection & Gas Stations

We have a number of cities that are connected by roads as shown below. There are a number of cities on a straight line from left to right and each pair of adjacent cities is connected by a road. Then there is one intersection where three roads meet at a city and a number of cities are located in a vertical direction, also connected by roads in the same way. In the figure, there are 4 cities in the horizontal direction and there are 2 more cities in the vertical direction. You want to move from the leftmost city to the rightmost city using a car. The car has no fuel initially and you have to put some gas in to start the travel. The fuel capacity of the car is infinite. The gas prices at the cities are different. The car can travel 1 kilometer per liter of gas. The gas prices will be given in dollars per liter. The cost is defined to be the total gas price paid. You have to write a program to find the way to travel from the leftmost city to the rightmost city with the minimum cost and print the cost. In the figure, the numbers inside the circles represent the gas prices and the numbers besides the lines represent the lengths of the road. No gas price for the rightmost city is given because the gas price there does not change the minimum cost.



In the figure above, you have to buy at least 3 liters of gas at the leftmost city. It is not economical to buy more than 3 liters there because you can buy at a smaller price in other cities. You have a choice to go down or not at the 3rd city from the left. If you consider the prices, it is more economical to go down one city and buy gas from there because you can travel the last 15 kilometers with much less cost. In all, optimal cost is 46 as follows: 5(*3 liters) + 4(*2 liters) + 3(*2 liters) + 1(*17 liters) = 15 + 8 + 6 + 17.

[Input]
In the first line of the input file is given the number of test cases in the file. (T ≤ 135) The first line of a test case contains the number N of cities in the horizontal direction. In the next line the gas prices and lengths of roads are given as in the above figure, i.e., in sequence of gas price, road length, gas price, road length, and so on. The gas price for the rightmost city is not given. In the next line two integers are given. The first number indicates where the intersection is, that is, the first number is the count from the left of the city where the intersection is located. The second number indicates the number of additional cities in the vertical direction. The next line contains the road lengths and the gas prices, again as in the above figure, in sequence of road length, gas price, road length, gas price, and so on. There are at most 5,000 cities in the horizontal direction and there are at most 5,000 cities in the vertical direction. The lengths of the roads and the gas prices are integers between 1 and

1,000, inclusive.

The inputs are given in 3 sets as follows:

- Set 1: The number of cities in the horizontal and vertical directions is at most 20 each.
- Set 2: The number of cities in the horizontal and vertical directions is at most 500 each.
- Set 3: The number of cities in the horizontal and vertical directions is at most 5,000 each.

[Output]
For each test case, print the minimum cost as an integer.

[I/O example]
Input

```
1
4
5 3 4 2 3 15          // gas price, road length, gas price, ...
3 2
2 1 15 8        // road length, gas price, road length, ...
```

Output

```
46
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