

Knapsack 4

Time limit: 5.0s **Memory limit:** 512M

Rope Pulling, also known as Tug of War, is a classic game. After acquiring a very very very large tie under suspicious circumstances, Zhang3 is using it to organize such a game between mathies and engineers.

There are n mathies and m engineers. Participant i has strength w_i and meme value v_i .

To make the game more *interesting*, Zhang3 wants to choose the teams to have same total strengths, while maximizing the total meme values of all participants.

Output the maximum meme value possible. Note that empty teams are also allowed.

Input Specification

The first line of the input gives the number of test cases, T ($1 \leq T \leq 30$). T test cases follow.

For each test case, the first line contains two integers n, m ($1 \leq n, m \leq 1\,000$), representing the number of mathies and engineers respectively.

Then $n + m$ lines follow, describing the students. The i^{th} line contains two integers w_i, v_i ($1 \leq w_i \leq 1\,000, -10^9 \leq v_i \leq 10^9$), representing the strength and the meme value by the i^{th} participant. The first n are mathies, while the other m are engineers. The sum of $n + m$ in all test cases doesn't exceed 10^4 .

Output Specification

For each test case, print a line with an integer, representing the maximum total meme value of two teams with the same total strength values.

Sample Input

```
2
3 4
4 7
3 8
2 2
1 4
5 8
1 3
4 4
1 2
1000 -10000
200 3000
800 5000
```

Sample Output

```
30
0
```

Problem Resource: 2020 Multi-University Training Contest 4, Hangzhou Xuejun Contest, Problem C