1031 - Noodle Team Contest

Description

There will be a noodle cooking contest! Each team consist of **N (1 <= N <= 12)** peoples. Each member of the team should cook his/her noodle, but the team will only have one pot/wok to cook the noodle. The first team to finish their noodles is the winner. To cook a noodle, there are two steps:

1. step-1: Cook the noodle in a boiled water for 3 minutes, rain, and put into a dish.
2. step-2: Put the seasoning, stir, and done!

Because there is only one pot, only one person in the team at a time can do step-1. For example, there are two peoples in the team:

1. Andoko. step-1 needs 2 minutes, step-2 needs 3 minutes.
2. Kurniady. step-1 needs 3 minutes, step-2 needs 4 minutes.

If Andoko be the first person to use the pot to do his step-1 (Kurniady wait for 2 minutes), then the team will need 9 minutes to finish their noodles. If Kurniady be the first person to use (Andoko wait for 3 minutes), then the team will need 8 minutes. Hence, letting Kurniady be the first person will lead to a better result (faster finish time). Given the time for each member to complete his/her step-1 and step-2, find the minimum time needed by the team to finish all their noodles.

Input specification

The first line of input contains an integer **T (1 <= T <= 200000)**, the number of test cases follow. Each test case starts with an integer **N** denoting the number of people in one team. The next **N** lines each contains 2 integers, **T1** and **T2 (0 <= T1 and T2 <= 10^3)** the time needed for each member to do step-1 and step-2 respectively.

Output specification

For each test case, output in a line the the minimum time needed to finish all the noodles.

Sample input

```
2
2
2 3
3 4
10
8 3
6 1
2 2
3 2
6 4
1 7
9 2
4 4
4 0
8 6
```

Sample output

```
8
51
```

Hint(s)

Source	2009 ACM-ICPC INC
Added by	**ejaltuna**
Addition date	2011-10-03 18:12:32.0
Time limit (ms)	16000
Test limit (ms)	16000
Memory limit (kb)	65536000
Output limit (mb)	64
Size limit (bytes)	30720

Enabled languages	C C# C++ C++11 Java JavaScript-NodeJS Pascal Perl PHP Prolog Python Ruby Text