



Task 1: MODSUM

In this task, you are given the following function f with n parameters:

$$f(x_1, \dots, x_n) = (((x_1 + x_2 + \dots + x_n)^4 + 2 \times (x_1 + x_2 + \dots + x_n)^2) \bmod 5) + 1$$

As arguments, f accepts only integer values. Your task is to compute the sum of all values of f , where each input x_i ranges from an integer value v_i to w_i . In other words, you need to compute

$$\sum_{x_1=v_1}^{w_1} \sum_{x_2=v_2}^{w_2} \cdots \sum_{x_n=v_n}^{w_n} f(x_1, \dots, x_n)$$

For example, if $n = 3$, $v_1 = 2$, $w_1 = 3$, $v_2 = 10$, $w_2 = 12$, $v_3 = 17$ and $w_3 = 17$, then the result should be 19, since $f(2, 10, 17) = 4$, $f(2, 11, 17) = 1$, $f(2, 12, 17) = 4$, $f(3, 10, 17) = 1$, $f(3, 11, 17) = 4$ and $f(3, 12, 17) = 5$.

Important note: You can assume that the result will always be less than 1,000,000.

Input format

Your program must read from the standard input. The input consists of n , where $1 \leq n \leq 1000$, followed by n pairs of numbers, v_i and w_i , each of which ranges from 0 to 100. For each pair v_i and w_i , you can assume that $v_i \leq w_i$. In our example above, the input is:

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3 2 3 10 12 17 17
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Output format

Your program must write to the standard output the required sum. In our example above, the output will be:

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19
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Input instances

Your program will be tested on 5 sets of input instances as follow:

1. (5 marks) All instances in this set satisfy $n \leq 6$.
2. (5 marks) All instances in this set satisfy $n \leq 20$.
3. (5 marks) All instances in this set satisfy $n \leq 100$.
4. (5 marks) All instances in this set satisfy $n \leq 200$.
5. (5 marks) All instances in this set satisfy $n \leq 1000$.