



## Absolute

Time Limit: 2000/1000 MS (Java/Others)    Memory Limit: 32768/32768 K (Java/Others)  
 Total Submission(s): 0    Accepted Submission(s): 0

### Problem Description

Winter is here at the North and the White Walkers are close. There's a young Night Watch standing on the Wall.

The young Night Watch has created a method to keep his body warm. Every time he generate a random rational number  $x$  in range  $[l_i, r_i]$  independently and uniformly, then he walks  $x$  meters to east.

Now he has  $n$  ranges  $[l_1, r_1], [l_2, r_2] \dots [l_n, r_n]$ . He wants to know the expected distance to origin. If answer is a fraction  $\frac{p}{q}$ , output an integer  $0 \leq s < 998244353$  so that  $p \equiv sq \pmod{998244353}$ .

### Input

An integer  $n$  in the first line.  $1 \leq n \leq 15$

The following  $n$  lines, each contain two integers  $l_i, r_i$ . ( $-10^6 \leq l_i \leq r_i \leq 10^6$ )

### Output

Output the expected distance to origin in a line, modulo 998244353.

### Sample Input

```
2
-2 3
-2 1
```

### Sample Output

```
199648872
```

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