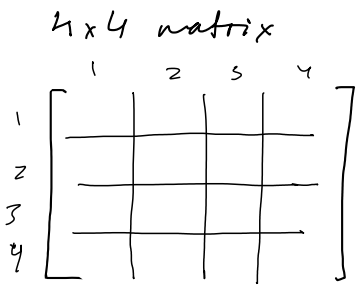
Optimization prize 1

Monday, October 27, 2025 1:03 PM



constraints

[1][1] = 2
[2][2] = 1
[3][3] = 4
[4][4] = 1

[1][4] = 3
[4][1] = 3

[x][y]

gaps are nonnegative continuous aka floats

2	a	b	3
c	1	d	e
f	g	4	h
3	i	j	1

function that
takes row column pairs
where their are gaps provide ranges that satisfy row[i] column[j] both = 10

flow :

5x4 @ [2, a, b, 3]
=> set a and b ranges that satisfy 2 + a + b + 3 = 10

a + b = 5 [0, 5]

20 lines

1 : 4
2 : 4
3 : 4
4 : 4

2	[0,5]	[0,5]	3
[0,5]	1		[0,6]
[0,5]		4	[0,6]
3	[0,6]	[0,6]	1

x_1 x_2

$x_1 + x_2 = 10$
$2x_2 =$

2	2.5	2.5	3	10
2.5	1	0.5	3	7
2.5	0.5	4	3	10
3	7	3	1	10
10	11	14	10	

we set one greater than midpoint and one lower

2	3.25	1.75	3	
2.5	1	3.25	1	
1.5		1.75	4	
3			1	

Start

2	[0,5]	[0,5]	3
[0,5]	1		[0,6]
[0,5]		4	[0,6]
3	[0,6]	[0,6]	1

lower & upper bound Symmetry

2	[2.5,5)	[0,2.5)	3
[2.5,5)	1	[0,3.5)	[3,6)
[0,2.5)	[0,3.5)	4	[0,3)
3	[3,6)	[0,3)	1

2	3.75	1.25	3	10
3.75	1	1.75	4.5	11 -1
1.25	1.75	4	1.5	8.5 +1
3	4.5	1.5	1	10
10	11 -1	8.5 +1	10	

2	3.75	1.25	3	10
3.75	1	1.75	3.5	10
1.25	1.75	4	2.5	9.5 +0.5
3	3.5	2.5	1	10
10	10	9.5 +0.5	10	

2	3.75	1.25	3	10
3.75	1	2.25	3.5	10
1.25	2.25	4	2.5	10
3	3.5	2.5	1	10
9.5	10.5	10	10	

2	3.75	1.25	3	10
3.25	1	2.25	3.5	10
1.75	1.75	4	2.5	10
3	3.5	2.5	1	10
10	10	10	10	