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Clive Ward 9\*

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**--- Day 6: Probably a Fire Hazard ---**

Because your neighbors keep defeating you in the holiday house decorating contest year after year, you've decided to deploy one million lights in a 1000x1000 grid.

Furthermore, because you've been especially nice this year, Santa has mailed you instructions on how to display the ideal lighting configuration.

Lights in your grid are numbered from 0 to 999 in each direction; the lights at each corner are at 0,0, 0,999, 999,999, and 999,0. The instructions include whether to turn on, turn off, or toggle various inclusive ranges given as coordinate pairs. Each coordinate pair represents opposite corners of a rectangle, inclusive; a coordinate pair like 0,0 through 2,2 therefore refers to 9 lights in a 3x3 square. The lights all start turned off.

To defeat your neighbors this year, all you have to do is set up your lights by doing the instructions Santa sent you in order.

For example:

* turn on 0,0 through 999,999 would turn on (or leave on) every light.
* toggle 0,0 through 999,0 would toggle the first line of 1000 lights, turning off the ones that were on, and turning on the ones that were off.
* turn off 499,499 through 500,500 would turn off (or leave off) the middle four lights.

After following the instructions, *how many lights are lit*?

started running c.00.00 on 19/01

107 lines done by 08.27 on 20th

turn off 660,55 through 986,197

[['660', '55'], ['986', '197']]

46761 sets of coordinates calculated

46761

line 1 done

number of lights on = 0

turn off 341,304 through 638,850

[['341', '304'], ['638', '850']]

163006 sets of coordinates calculated

163006

line 2 done

number of lights on = 0

turn off 199,133 through 461,193

[['199', '133'], ['461', '193']]

16043 sets of coordinates calculated

16043

line 3 done

number of lights on = 0

toggle 322,558 through 977,958

[['322', '558'], ['977', '958']]

263056 sets of coordinates calculated

263056

line 4 done

number of lights on = 263056

toggle 537,781 through 687,941

[['537', '781'], ['687', '941']]

24311 sets of coordinates calculated

24311

line 5 done

number of lights on = 238745

turn on 226,196 through 599,390

[['226', '196'], ['599', '390']]

72930 sets of coordinates calculated

72930

line 6 done

number of lights on = 311675

turn on 240,129 through 703,297

[['240', '129'], ['703', '297']]

78416 sets of coordinates calculated

78416

line 7 done

number of lights on = 353371

turn on 317,329 through 451,798

[['317', '329'], ['451', '798']]

63450 sets of coordinates calculated

63450

line 8 done

number of lights on = 377121

turn on 957,736 through 977,890

[['957', '736'], ['977', '890']]

3255 sets of coordinates calculated

3255

line 9 done

number of lights on = 377121

turn on 263,530 through 559,664

[['263', '530'], ['559', '664']]

40095 sets of coordinates calculated

40095

line 10 done

number of lights on = 387435

turn on 158,270 through 243,802

[['158', '270'], ['243', '802']]

45838 sets of coordinates calculated

45838

line 11 done

number of lights on = 431095

toggle 223,39 through 454,511

[['223', '39'], ['454', '511']]

109736 sets of coordinates calculated

109736

line 12 done

number of lights on = 384233