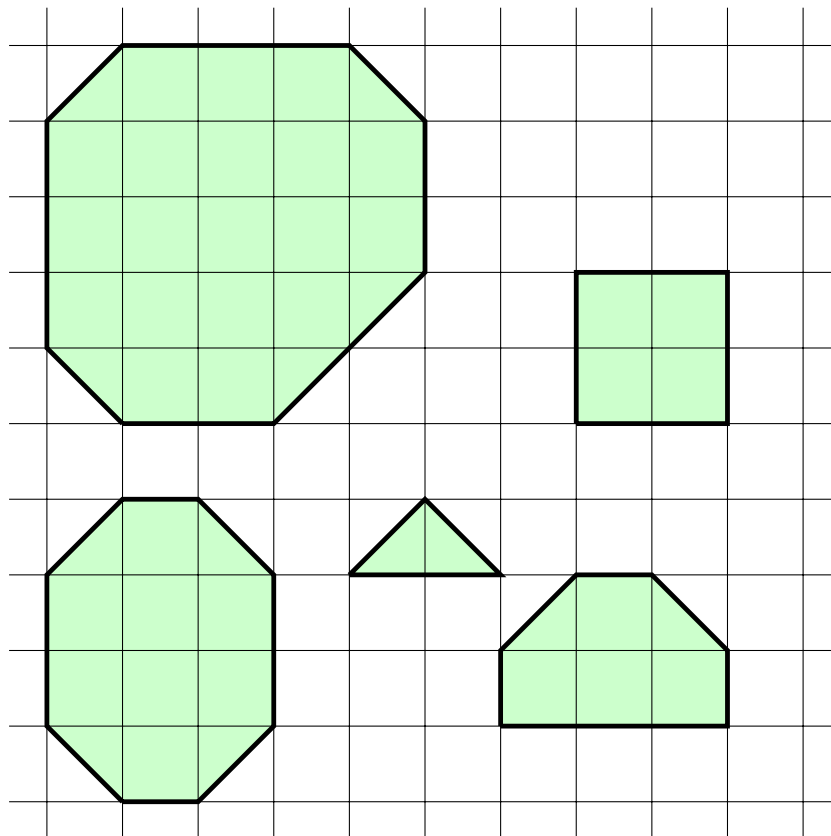




## Problem Octagon

Input file        `stdin`  
Output file      `stdout`

A *nice octagon* is a convex figure with nonzero area with *at most* 8 edges, where each edge is either parallel to the coordinate axes, or makes a  $45^\circ$  angle with them. All edges parallel to the coordinate axes must have integer lengths; all other edges must have lengths that are integer multiples of  $\sqrt{2}$ . Below we can see a few examples of nice octagons.



Suppose we walk around the edges of a nice octagon in *counter-clockwise* order. We observe that it is formed out of length 1 and  $\sqrt{2}$  segments that join two grid points that are consecutive in the walk. Consequently, the segments are split into 8 different categories, depending on the direction in which they go: north, north-east, east, south-east, south, south-west, west, and north-west.

Suppose you are given the maximum number of segments of each category that you can use. How many different nice octagons can you form?

### Input data

The first and only line of the input contains 8 space-separated integers — the maximum number of segments going in the north, north-east, east, south-east, south, south-west, west, and north-west directions.



## Output data

Output the required count of nice octagons, modulo  $10^9 + 7$ .

## Restrictions

- Let  $N$  be the maximum of the eight values in the input.
- $N \leq 1\,000\,000\,000$
- Two nice octagons are considered the same if one can be obtained from the other by a translation *but without using rotations*. In particular, two nice octagons are the same if and only if they use the same number of segments of each of the eight types.

#	Points	Restrictions
1	9	There are no diagonal segments available.
2	17	$N \leq 100$
3	29	$N \leq 2\,000$
4	29	$N \leq 200\,000$
5	16	No further restrictions.

## Examples

Input file	Output file
1 0 1 0 1 0 1 0	1
1 1 1 1 1 1 1 1	19
2 2 2 2 2 2 2 2	228
1 2 3 4 4 3 2 1	135
100 100 100 100 100 100 100 100	636061137

## Explanations

In the first example, the only nice octagon is a  $1 \times 1$  square.

In the second example, there are 19 nice octagons.