Problem A. Nearest Neighbor Search

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Bobo has a point p and a cube C in 3-dimension space. The point locates at coordinate (x_0, y_0, z_0), while

$$C = \{(x, y, z) : x_1 \leq x \leq x_2, y_1 \leq y \leq y_2, z_1 \leq z \leq z_2\}.$$

Bobo would like to find another point q which locates inside or on the surface of the cube C so that the square distance between point p and q is minimized.

Note that the square distance between point (x, y, z) and (x', y', z') is $(x - x')^2 + (y - y')^2 + (z - z')^2$.

Input

The first line contains 3 integers x_0, y_0, z_0.

The second line contains 3 integers x_1, y_1, z_1.

The third line contains 3 integers x_2, y_2, z_2.

$(|x_i|, |y_i|, |z_i| \leq 10^4, x_1 < x_2, y_1 < y_2, z_1 < z_2)$

Output

An integer denotes the minimum square distance.

Examples

standard input	standard output
0 0 0 1 1 1 2 2 2	3
1 1 1 0 0 0 2 2 2	0