3. Ant (sipelgas)

1 second 40 points

An ant and a drop of honey are on the surface of a rectangular parallelepiped. The ant crawls to the honey along the shortest route on the surface of the parallelepiped.

Write a program that gets the dimensions of the parallelepiped and the positions of the ant and the honey and computes the distance that the ant has to crawl.

Input. The first line contains three space-separated integers X_r, Y_r, Z_r ($1 \le X_r \le 1\,000$, $1 \le Y_r \le 1\,000$, $1 \le Z_r \le 1\,000$), the dimensions of the parallelepiped. The coordinates of one of its vertices are $(0, 0, 0)$ and the coordinates of the diagonally opposite vertex are (X_r, Y_r, Z_r). The parallelepiped is axis-aligned.

The second line contains three space-separated integers X_s, Y_s, Z_s ($0 \le X_s \le X_r$, $0 \le Y_s \le Y_r$, $0 \le Z_s \le Z_r$), the coordinates of the starting position of the ant. It is known that the point (X_s, Y_s, Z_s) is located on the surface of the parallelepiped.

The third line contains three space-separated integers X_m, Y_m, Z_m ($0 \le X_m \le X_r$, $0 \le Y_m \le Y_r$, $0 \le Z_m \le Z_r$), the coordinates of the drop of honey. It is known that the point (X_m, Y_m, Z_m) is located on the surface of the parallelepiped.

Output. Output one real number: the distance crawled by the ant. The value may not differ from the correct answer by more than 0.001.

Example.

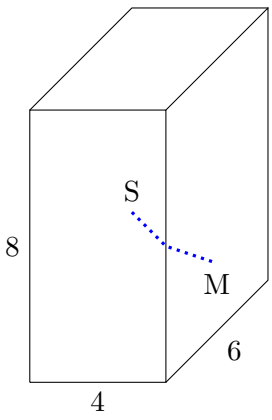
Input	Output
4 6 8 3 0 5 4 3 2	5

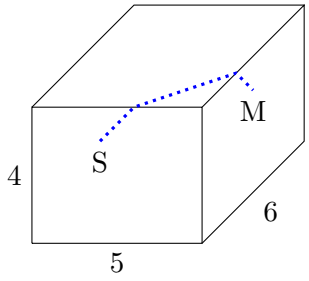
The ant will crawl over one edge of the parallelepiped (on the left in the figure below).

Example.

Input	Output
5 6 4 2 0 3 5 3 3	5.656854

The ant will crawl over two edges at a 45-degree angle (on the right in the figure below).





Grading. In test cases worth 5 points in total, the ant and the honey are on the same face of the parallelepiped. In test cases worth the next 5 points, the ant has to crawl over exactly one edge of the parallelepiped. In test cases worth the next 10 points, the parallelepiped is a cube. In test cases worth the remaining 20 points, there are no additional constraints.