ACSL

**American Computer Science League**

**2012 - 2013**

#### All-Star #7

Traffic

**PROBLEM:** ACSL City was designed using a grid pattern of mostly one-way traffic roads. The direction of traffic for each road is given by the arrows on the sides of the diagram. The few two-way traffic roads are diagonal. The roads that go from East to West are labeled avenues. The roads that go from North to South are labeled streets. The avenue and street names are consecutive numbers. The diagonal roads are bypasses and are not named. Street and avenue intersections are given as ordered pairs in (street, avenue) order. The dot in the diagram below is located at Street 4 and Avenue 5 (4, 5). The horizontal and vertical distance from one intersection to another is one unit. The diagonal distance from one intersection to the next intersection is 1.4 units.



N

W E

S

Avenues

Streets

**INPUT:** There will be 10 lines of input. Each line will contain 4 positive integers representing the ordered pairs for the start and end points. For Inputs 1 - 5 diagonal bypasses will not be allowed.

**OUTPUT:** For each input line print the shortest distance from the start point to the end point.

SAMPLE INPUT SAMPLE OUTPUT

1. 1, 1, 2, 1 1. 1  
 2. 1, 1, 1, 2 2. 1  
 3. 2, 1, 2, 2 3. 3  
 4. 2, 1, 1, 2 4. 4  
 5. 4, 1, 2, 2 5. 5  
 6. 1, 2, 2, 3 6. 1.4  
 7. 2, 2, 5, 5 7. 4.2  
 8. 1, 2, 4, 3 8. 3.4  
 9. 5, 5, 4, 3 9. 2.4  
 10. 2, 5, 6, 3 10. 4.8

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TEST DATA

TEST INPUT TEST OUTPUT

1. 4, 2, 3, 2 1 1  
 2. 4, 2, 3, 3 2. 2  
 3. 4, 2, 2, 1 3. 3  
 4. 5, 3, 3, 4 4. 3  
 5. 4, 1, 4, 5 5. 8  
 6. 1, 6, 5, 2 6. 5.6  
 7. 4, 2, 2, 5 7. 4.4  
 8. 6, 5, 2, 2 8. 5.8  
 9. 4, 6, 5, 2 9. 4.4  
 10. 6, 3, 6, 4 10. 7