

Legend Of Mystico

Difficulty: MEDIUM

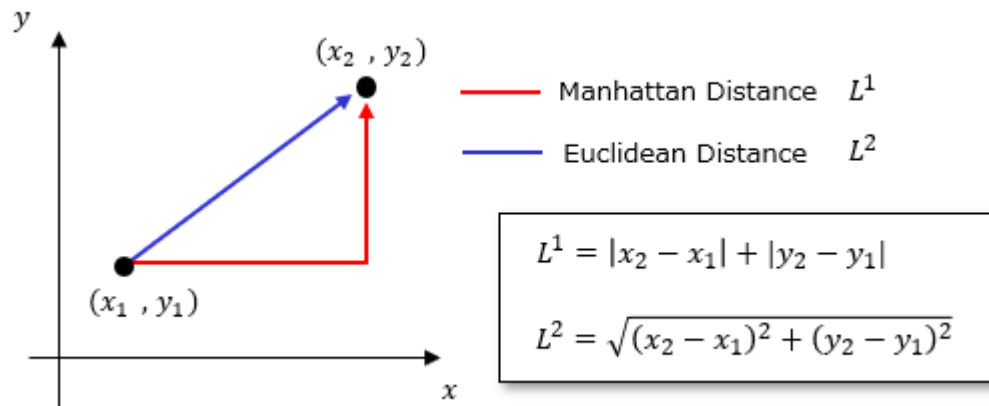
Time Limit: 1 s

Memory Limit: 256 MB



Description

Mount Mystico is an incredibly beautiful mountain, almost like a paradise. It's said to be filled with magical wonders that don't exist in the real world. Rumor has it that not everyone can find this mountain because there's a specific way to locate it. One day, Diabeto dreamt that he had received clues to find this elusive mountain. In his dream, he discovered the exact location of the mountain. However, the key to reaching Mount Mystico was by comparing the Euclidean distance (straight-line distance) and the Manhattan distance (horizontal + vertical). If the Euclidean distance was a whole number, he had to follow the Euclidean distance. But if the Euclidean distance wasn't a whole number, he had to follow the Manhattan distance. Therefore, Diabeto was determined to find Mount Mystico. However, he didn't know how to calculate the distance from his home to Mount Mystico. Help Diabeto find Mount Mystico!



Input

- The first line is **X1 & Y1** , Which represents Diabeto's coordinate
- The Second line is **X2 & Y2** , Which represents Mount Mystico coordinate

Output

- In the first line, Print **You are D km away from Mystico!** . Where **D** is the distance. BUT, if the distance is **0** , print **You are living in Mystico!**
- In the second line, if distance is Euclidean, only print **Go Straight for D km!** Where **D** is the distance. Otherwise, if the distance is Manhattan, print **Go [East/West] for H km, Then Go [North/South] for V km** , Where **H** is the Horizontal Distance & **V** is the Vertical distance.

Hints

- Use **abs(X)** for absolute number
- Use **sqrt(X)** for square root of a number

Constraints

- $\text{INT_MIN} < \text{Each Coordinate} < \text{INT_MAX}$
- *All Results should be Integer*

EXAMPLE

Input
0 8 6 0
Output
You are 10 km away from Mystico! Go Straight for 10 km!

Input
1 2 6 0
Output
You are 7 km away from Mystico! Go East for 5 km, Then Go South for 2 km

Input
9 2 3 8
Output
You are 12 km away from Mystico! Go West for 6 km, Then Go North for 6 km

Input
1 1 1 1
Output
You are living in Mystico!