CONCLUSIONS of the discovery activity:

While you are inside the between-region, moving along a street always increases one distance and decreases the other distance by the same amount.

While you are outside the between-region, moving away from the between-region always increases both distances by the same amount. moving toward the between-region always decreases both distances by the same amount.

HOW TO FIND THE TAXICAB BISECTOR:

1. Find a point that is halfway between M and N. Miguel and Nadia would each walk the same distance to get to that location.

2. (a) Consider moving to the location one block north of your point. Does that help or hurt Miguel? By how many blocks? Does it help or hurt Nadia? By how many blocks?

(b) Consider moving to the location one block east of your new location. Does that help or hurt Miguel? By how many blocks? Does it help or hurt Nadia? By how many blocks?

(c) From the original location, does moving one block north and one block east get to a location that is the same taxicab distance from Miguel as it is from Nadia?

   If so, good.
   Mark the new location as another point in the taxicab bisector. Now check the location one block north and one block east of your new location. Keep checking and marking locations as long as they are equal for Miguel and Nadia. Then check locations one block south and one block west of the previous locations.

   If not, does moving one block west balance the effects of moving one block north? It should. Mark the new location as another point in the taxicab bisector. Now check the location one block north and one block west of your new location. Keep checking and marking locations as long as they are equal for Miguel and Nadia. Then check locations one block south and one block east of the previous locations.

3. When you hit an edge of the region taxicab-between M and N, there is a different pattern. Why? Now, move away from the between-region.

   For example, if you find a location on the south border, then move one block south. This should take you to a location that will make Miguel and Nadia each walk one block more.