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#1

Data analysts define distance function to measure similarity. Distance function is a real-valued function d, such that for any coordinates x, y, and z:

So when the distance function is , the distance between (0,0,0), (0,1,0), (0,1,1), and (1,1,1) can be measured respectively.

The distance between (0,0,0) and (0,1,0) is

The distance between (0,0,0) and (0,1,1) is

The distance between (0,0,0) and (1,1,1) is

The distance between (0,1,0) and (0,1,1) is

The distance between (0,1,0) and (1,1,1) is

The distance between (0,1,1) and (1,1,1) is

According to the following results,

It is not satisfied the third condition, so the distance function is not a proper distance function. However, if it just used to measure the given points, it is a proper distance function.