**Question 1:**

**Is the following function a proper distance function? Why? Explain your answer.**

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**Hint: Measure the distance between (0,0), (0,1) and (1,1)**

**Answer 1:**

A distance metric or distance function is a real-valued function d, such that for any coordinates x, y, and z:

1. d(x,y) ≥ 0, and d(x,y) = 0 if and only if x = y
2. d(x,y) = d(y,x)
3. d(x,z) ≤ d(x,y) + d(y,z)

Distance between (0,0) & (0,1) is: ((|0-0|) + (|0-1|)3 = 1

Distance Between (0,1) & (1,1) is: ((|0-1| + (|1-1|))3 = 1

Distance Between (1,1) & (0,0) is: ((|0-1|) + (|0-1|))3 = 8

This equation is not satisfied 3 distance metrics. So that, It’s not proper distance function.