For any function to be a proper distance function, it should satisfy below conditions:

1. Distance should be non-negative

2. For two points, distance should be commutative

3. Distance should hold triangle inequality,

i.e. for a,b,c, d(a,c) <= d(a,b) + d(b,c)

- Let’s check these conditions on a=(0,0), b=(0,1) and c=(0,0)

1. First condition satisfy directly, as given distance function is a squared difference

2. d(a,b) = (0-0) 5 + (0-1)5 + (0-0) 5 = -1 != d(b,a) = (0-0) 5 + (1-0) 5 +(0-0) 5 = 1

Hence, 2nd condition does not satisfies

- So, given function is not a proper distance function.