Let X be the plane and define pseudometrics d and $\quad$ by

$$d(x, y) = \sqrt{(x_1 - y_1)^2 + (x_2 - y_2)^2}, \text{ and}$$
$$(x, y) = |x_1 - y_1| \ ;$$

where, of course, $x = (x_1, x_2)$ and $y = (y_1, y_2)$. Let i be the identity function on X ; that is, $i(x) = x$ for every $x \quad X$. Prove or disprove:

1. $i : (X, d) \quad (X, \ )$ is continuous. **2.** $i : (X, \ ) \quad (X, d)$ is continuous.