Let $A \subset X$. If d is a metric for the topology of X show that $d|A \times A$ is a metric for the subspace topology on A

1. for $x, y \in A$ $d(x,y) \geq 0$, and $d(x,y) = 0$ $\iff$ $x = y$. This is true for $x, y \in X$ and thus for $x, y \in A$

2. $d(x,y) = d(y,x)$ since $x, y \in X$

3. let $x, y, z \in A$ then $x, y, z \in X$ thus $d(x,z) \leq d(x,y) + d(y,z)$