

Homework #6- Hand in no later than 2:41 p.m., Friday, June 2

:

Suppose (X, d) is a pseudometric space, $C(x; r) = \{y \in X : d(x, y) < r\}$, and $B(x; r) = \{y \in X : d(x, y) \leq r\}$.

Prove or give a counterexample:

1. $C(x; r)$ is an open set.
2. $B(x; r)$ is a closed set.
3. The closure of $C(x; r)$ is $B(x; r)$.
4. $C(x; r)$ is connected.