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.