

Problems in Topology (Math436)

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Read Chapter 5

- (1) Let X and Y be two topological spaces. For $f : X \rightarrow Y$ show that the following statements are equivalent.
 - a) f is continuous.
 - b) $f^{-1}(U)$ is open in X for every open $U \subset Y$.
 - c) $f^{-1}(F)$ is closed in X for every closed $F \subset Y$.
 - d) $f(\overline{A}) \subset \overline{f(A)}$, for $A \subset X$.((d) \Rightarrow (a) was already shown in class)
- (2) Problem 1 page 67.
- (3) Problem 3 page 67.
- (4) Problem 7 page 67.