

Homework

November 7, 2011

1. A space X is *topologically complete* if there is a complete metric that generates the topology on X .
 - (a) Show that a closed subspace of topologically complete space is topologically complete.
 - (b) Show that a countable product of topologically complete spaces is topologically complete.
 - (c) Show that an open subspace of a topologically complete space is topologically complete.
2. If Y is a metric space, and $\mathcal{C}(X, Y)$ has the uniform topology show that the evaluation map

$$X \times \mathcal{C}(X, Y) \rightarrow Y$$

is continuous.