Point Set Topology Table

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Theorem 1. *The subspace of a regular space is regular - Theorem 31.2 from Munkres.*

Proof. Let Y be a subspace of a regular space X.
Then one-point sets are closed in Y.
Let x be any point in Y and let B be a closed subset of Y disjoint from x.
Then $\overline{B} \cap Y = B$, where $\overline{B}$ is the closure of B in X.
Thus $x \notin \overline{B}$, so by using the definiton of regularity of X, we can choose disjoint open sets U and V of X containing x and $\overline{B}$, respectively.
Then $U \cap Y$ and $V \cap Y$ are disjoint open sets in Y containing x and B, respectively. $\square$