If $X \cap Y = \varnothing$, *then* $|X \cup Y| = |X| + |Y|$.

More generally,

> *If the sets* $X_1, \ldots, X_n$ *are pairwise disjoint (that is* $X_i \cap X_j = \varnothing$ *for all* $i \neq j$*), then* $|X_1 \cup X_2 \cup \cdots \cup X_n| = |X_1| + |X_2| + \cdots + |X_n|$.

Formally, this follows by induction on n from the sum rule for two sets. Later we will learn how to proceed if the sets are not disjoint.