Abstract   Let $\mathcal{G}$ be a planar graph and let T be a subset of vertices of $\mathcal{G}$ of even cardinality. Suppose that there exists a T-cut of $\mathcal{G}$ of cardinality at most five and that the parity of the cardinality of every T-cut is the same. We show that in that case the cardinality of the smallest T-cut is equal to the maximum number of pairwise disjoint T-joins. As a corollary we obtain that for $k \in \{4,5\}$, a k-regular planar graph has chromatic index k if and only if for every subset of vertices X of odd cardinality there are at least k edges with exactly one end in X. The case where $k = 4$ was conjectured by Seymour in 1979.