1058-52-28 **Jay Kangel*** (j.kangel@excite.com), 4610 Bryant Ave. S. Apt. 102, Minneapolis, MN 55419.
Necessary and Sufficient Conditions for Krein-Milman Type Conclusions.

Convex structures and notions of extreme subsets are used to provide necessary and sufficient conditions for Krein-Milman type conclusions. Suppose that C is a convex set. We prove: 1. Any collection of pairwise disjoint, extreme subsets of C can be enlarged to a collection whose convex hull is C iff every collection $\mathcal{E}$ of pairwise disjoint, extreme subsets of C satisfies either $C = \mathsf{con}(\cup\mathcal{E})$ or there exists a nonempty extreme subset E of C that is disjoint from $\cup\mathcal{E}$. 2. Assume the parts of the previous statement hold. Then C is the convex hull of its minimal extreme subsets iff there exists a topology for C that satisfies every nonempty extreme subset of C contains a nonempty, closed, compact, extreme subset of C. 3. Assume the parts of the previous statements hold. All of the minimal extreme subsets of C are singletons iff every nonempty extreme subset of C contains a singleton that is an extreme subset of C.

Topologies are constructed in which extreme subsets are closed. If X satisfies the hypotheses of the Krein-Milman theorem then, using the collection of closed, convex(in the usual sense) subsets as a convex structure and one these topologies, we obtain the conclusion of the Krein-Milman theorem. (Received December 16, 2009)