

TILING, PACKING, AND COVERING BY CLUSTERS

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The theory of packing, covering, and tiling by translates of a convex set or by a star body grew mainly out of Minkowski's work in the geometry of numbers. More recently, Bambah, Davenport, Mahler, Mordell, Rogers, and others have pursued questions in this area for their intrinsic geometric interest. (See Gruber's survey [16] for a review of the results and open problems.) Sometimes a star body which is of no particular intrinsic interest is ingeniously constructed to provide an example confirming or refuting a conjecture. One of the objectives of this survey is to present a family of star bodies which in the past twenty years have been the object of varied investigations on their own right, have suggested new geometric, algebraic, and combinatorial questions and provided a rich and convenient source of examples.

These star bodies are the cross and semicross. For a nonnegative real number k and a positive integer n , the (k, n) -cross in Euclidean n -space,

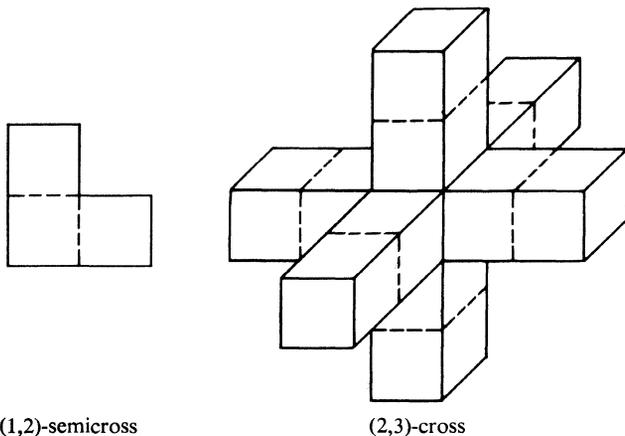


FIGURE 1

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