

# The Order Dimension of Convex Geometries

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## Abstract

The order dimension of partially ordered sets, or posets, is the minimum number of linear extensions needed to realize the poset. This property will be discussed for the lattice of closed sets for a convex geometry, sometimes called an antimatroid. We will prove the existence of large convex geometries generated by planar point sets in general position with very low order dimension. We also show that any planar point set  $2^{n-2} + 1$  points in general position must order dimension at least  $n$ .

**Keywords:** poset, order dimension, convex geometry, antimatroid.