

# Points, Copoints, and Colorings

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## Abstract

In 1935, Paul Erdős and George Szekeres were able to show that any point set large enough contains the vertices of a convex  $k$ -gon. Later in 1961, they constructed a point set of size  $2^{k-2}$  not containing the vertex set of any convex  $k$ -gon. This leads to what is known as the Erdős-Szekeres Conjecture, that any point set of  $2^{k-2} + 1$  points contains the vertices of a convex  $k$ -gon. Recently, this famous problem of planar geometry has been transformed into a problem of finding cliques in a graph of copoints. We will discuss results and open problems corresponding to this graph of copoints.

**Keywords:** convex  $k$ -gon, clique number