

Chromatic number of P_5 -free graphs

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In this talk we study the chromatic number of P_5 -free graphs. Gyárfas has shown the following

Theorem Let G be a P_k -free graph for $k \geq 4$ with clique number $\omega(G) \geq 2$. Then $\chi(G) \leq (k-1)^{\omega(G)-1}$.

and has posed the following question:

Question Is there a polynomial (χ -bounding) function f_k for $k \geq 5$ such that every P_k -free graph G satisfies $\chi(G) \leq f_k(\omega(G))$?

We will show that there are polynomial χ -bounding functions for several subclasses of P_5 -free graphs.