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Simultaneous coloring of edges and faces of plane graphs. (English) Zbl 0807.05029

Discrete Math. 128, No. 1-3, 21-33 (1994).

The edge-and-face chromatic number $\chi_{\text{ef}}(G)$ of a plane graph G is the least number of colors required to color the edges and faces of G such that every two adjacent or incident of them receive different colors. It is proved that if G is a plane graph with maximum degree at least 10 then $\chi_{\text{ef}}(G) \leq \Delta(G) + 1$, the bound being sharp. The proof is based on some new generalizations of Kotzig's Theorem on the minimal weight of edges in plane graphs. It is also proved that if G is a plane graph without separating triangles and $\Delta(G) \leq 7$ then $\chi_{\text{ef}}(G) \leq 10$.

Reviewer: [M.Frick \(Pretoria\)](#)

MSC:

[05C15](#) Coloring of graphs and hypergraphs

[05C10](#) Planar graphs; geometric and topological aspects of graph theory

Cited in **2** Reviews

Cited in **11** Documents

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