

Zonal Labelings and the Four Color Problem

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Two vertex labelings of a planar graph, called zonal and inner-zonal labelings, are described. A graph possessing a zonal (inner-zonal) labeling is a zonal (inner-zonal) graph. A close connection between zonal and inner-zonal graphs and the Four Color Theorem is described, which provides a new perspective and approach for the Four Color Problem. Results and problems dealing with zonality in graphs are presented.

Keywords: planar graph, Four Color Theorem, zonal and inner-zonal labeling.