

ORDERING CONNECTED 3-CHROMATIC GRAPHS

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ABSTRACT. Let $\mathcal{C}(n, k)$ denote the family of connected graphs having order n and chromatic number k . In [I.Tomescu, *J. Graph Theory*, 43(2003), 210-222] a partial order relation between the graphs in $\mathcal{C}(n, k)$ was defined by using the coefficients of the chromatic polynomial in factorial form and the first $\lceil n/2 \rceil$ levels of the diagram of the poset $\mathcal{C}(n, 3)$ were described. Later in [I. Tomescu, S. Javed, Extremal bicyclic 3-chromatic graphs, submitted] the next $(\lceil n/2 \rceil + 1)$ -st level was analysed. This paper is focused on the $(\lceil n/2 \rceil + 2)$ -nd level and it is shown that this level contains $(n^2 - 2n + 4)/4$ bicyclic graphs for even n and $(n + 1)^2/4$ bicyclic graphs for odd n .

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