All Ramsey (C_n, K_6) critical graphs for large n

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June 9, 2019

Abstract

Let G and H be finite graphs without loops or multiple edges. If for any two-coloring of the edges of a complete graph K_n, there is a copy of G in the first color, red, or a copy of H in the second color, blue, we will say $K_n \to (G, H)$. The Ramsey number $r(G, H)$ is defined as the smallest positive integer n such that $K_n \to (G, H)$. A two-coloring of $K_{r(G,H)-1}$ such that $K_{r(G,H)-1} \nrightarrow (G, H)$ is called a critical coloring. A Ramsey critical $r(G, H)$ graph is a graph induced by the first color of a critical coloring. In this paper, when $n \geq 15$, we show that there exist exactly sixty eight non-isomorphic Ramsey critical $r(C_n, K_6)$ graphs.