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Computation of the Folkman number $F_e(3,3;5)$. (English. English summary)

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The edge Folkman number $F_e(k,k;l)$ is the minimum number of vertices in a K_l-free graph G which has the property that each colouring of the edges of G with two colours leads to a monochromatic copy of the complete graph K_k. The vertex Folkman number $F_v(k,k;l)$ is defined in a similar way, but instead of colouring the edges of G, we colour its vertices. The authors design a computer algorithm which finds the values of $F_v(3,3;4)$ and $F_e(3,3;5)$. They conclude that $F_v(3,3;4)=14$, with 153 non-isomorphic critical graphs on 14 vertices, and $F_e(3,3;5)=15$, with 659 non-isomorphic critical graphs.

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