# A note on a neighbour-distinguishing regular graphs total-weighting

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## Abstract

We investigate the following modification of the problem posed by Karoński, Łuczak and Thomason [J. Combin. Theory, Ser. B 91 (2004) 151-157]. Let us assign positive integers to the edges and vertices of a simple graph $G$. As a result we obtain a vertex-colouring of $G$ by sums of weights assigned to the vertex and its adjacent edges. Can we obtain a proper colouring using only weights 1 and 2 for an arbitrary $G$?

We know that it is the truth if $G$ is a 3-colourable, complete or 4-regular graph. Moreover, it is enough to use weights from 1 to 11, as well as from 1 to $\lfloor \frac{\chi(G)}{2} \rfloor + 1$, for an arbitrary graph $G$. Here we show that weights from 1 to 7 are enough for all regular graphs.

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