# A NOTE ON THE CROSSING NUMBERS OF 5-REGULAR GRAPHS ${ }^{1}$ 

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#### Abstract

The crossing number $\operatorname{cr}(G)$ of a graph $G$ is the smallest number of edge crossings in any drawing of $G$. In this paper, we prove that there exists a unique 5 -regular graph $G$ on 10 vertices with $\operatorname{cr}(G)=2$. This answers a question by Chia and Gan in the negative. In addition, we also give a new proof of Chia and Gan's result which states that if $G$ is a non-planar 5-regular graph on 12 vertices, then $\operatorname{cr}(G) \geq 2$.


Keywords: crossing number, 5 -regular graph, drawing.
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