

Strong vertex-magic and super edge-magic total labelings of the disjoint union of a cycle with 3-cycles

Dan McQuillan^{1,*} James M. McQuillan²

¹*Department of Mathematics, Norwich University, Northfield, VT 05663, dmcquill@norwich.edu;*

²*School of Computer Sciences, Western Illinois University, Macomb, IL 61455, jm-mcquillan@wiu.edu*

The disjoint union $C_m \cup (2t)C_3$ is constructively shown to have a strong vertex-magic total labeling (SVMTL) for $m = 9$ and $m = 11$ and for all $t \geq 1$. Furthermore, $C_m \cup (2t - 1)C_3$ is constructively shown to have a SVMTL for $m = 6, 8, 10$, for all $t \geq 1$. The approach is to construct a specialized Kotzig array and use it in different ways for different graphs. Since, for any 2-regular graph, a SVMTL can be transformed into a super edge-magic total labeling of the same graph, it follows that each of the graphs mentioned also has a super edge-magic total labeling.