

1067-11-1528

Mark Budden, Nicole Calkins, William Nathan Hack, Joshua K Lambert and Kimberly Thompson* (sue144@hotmail.com), 704 North Main Street, Hinesville, GA 31313. *Enumeration of Triangles in Rational Residue Graphs.*

Bommireddy Maheswari and Madhavi Lavaku were the first to introduce quadratic residue graphs. Their studies gave us a method of enumerating the triangles in such graphs. We can extend these results further to a rather new topic in graph theory, rational residue graphs. Given $p \equiv 1 \pmod{2^t}$, rational residues graphs, denoted by $G_{2^t}(p)$, can be defined as graphs whose vertices are the elements in the set $V(G_{2^t}(p)) = \mathbb{Z}/p\mathbb{Z}$ and whose edges belong to $E(G_{2^t}(p)) = \{xy | x - y \text{ or } y - x \in (\mathbb{Z}/p\mathbb{Z})^{\times 2^t}\}$. We will discuss how the number of pairs of consecutive rational residues determines the number of triangles in rational residue graphs. (Received September 21, 2010)