1073-05-14 **Mark Budden**, **Nicole Calkins**, **William Nathan Hack** and **Joshua K. Lambert*** (joshua.lambert@armstrong.edu), Department of Mathematics, University Hall 297, 11935 Abercorn Street, Savannah, GA 31419, and **Kimberly Thompson**. *Enumerating Triangles in a Rational Residue Graph.*

In 1962, Horst Sachs introduced Paley graphs to the world of mathematics. Paley graphs tie together graph theory and number theory by letting the vertices of our graph be the elements of $\mathbb{F}_p$ for $p \equiv 1 \bmod 4$ and an edge occurs between two vertices a and b if $a - b$ is a quadratic residue in $\mathbb{F}_p$. Similar to Sachs' invention, the rational residue graph has vertices coming from elements of a field of prime order $p \equiv 1 \bmod 2^{t+1}$ and the edges are formed between vertices a and b when $a - b$ is a 2^tth residue. The properties of rational residues create symmetry in these graphs, which will provide us with a formula for the number of triangles in rational residue graphs. (Received June 3, 2011)