1145-05-109 **Alejandra Brewer*** (breweralie@gmail.com), Florida Southern College, Mathematics, 111 Lake Hollingsworth Drive, Polk Science Building, Lakeland, FL 33801, **Adam Gregory** (adgregory1@catamount.wcu.edu), Western Carolina University, College of Arts & Sciences, Stillwell 426, Cullowhee, NC 28723, and **Quindel Jones** (quindel.d.jones@gmail.com), Department of Mathematics, Jackson State University, P. O. Box 17610, Jackson, MS, MS 39217.
The Asymmetric Index of a Graph and Families of Asymmetric Graphs.

A graph is *asymmetric* if it has a trivial automorphism group. Asymmetric graphs were first studied by Erdős and Rényi in 1963. We define the *asymmetric index* of a graph, denoted $ai(G)$, to be the minimum of $r+s$ so that the resulting graph is asymmetric, where r is the number of edges removed from a graph and s is the number of edges added to a graph. We show that when $n \geq 8$, $ai(P_n) = 1$, $ai(C_n) = 2$, $ai(C_{n^2 \pm 1}(1,n)) = 2$, $ai(K_{1,n-1)} = 2n-9$, $ai(P_n + tP_1) = t$, $ai(C_n + tP_1) = t+1$, $ai(C_{n^2 \pm 1}(1,n) + tP_1) = t+1$, and $\lfloor \frac{6n}{7} \rfloor \leq ai(K_n) \leq n-2$.

Erdős and Rényi also posed the question of finding the number of asymmetric trees. We give a partial result, showing that the number of asymmetric subdivided stars is approximately $q(n-1) - \lfloor \frac{n-1}{2} \rfloor$ where $q(n)$ yields the number of ways to sum to n using distinct positive integers, found by Hardy and Ramanujan in 1918.

In addition, we investigate k-regular asymmetric Hamiltonian graphs and determine infinite families for $k=3$ and $k=4$. Furthermore, we show the existence of k-regular asymmetric Hamiltonian graphs for each $k > 6$. (Received September 26, 2018)