1051-30-223 **Alexander S Williams*** (alexander.williams@ttu.edu), Department of Mathematics and Statistics, 2500 Broadway St, Lubbock, TX 79409-1042, **Roger W Barnard** (roger.w.barnard@ttu.edu), Department of Mathematics and Statistics, 2500 Broadway St, Lubbock, TX 79409-1042, and **Alexander Yu Solynin** (alex.solynin@ttu.edu), Department of Mathematics and Statistics, 2500 Broadway St, Lubbock, TX 79409-1042. *Some Geometric Properties of Symmetric Lemniscates.*

We consider geometric properties of lemniscates $E(p,c) = \{z \in \mathbb{C} : |p(z)| \leq c\}$ of a complex polynomial $p(z)$ of degree $n$. The symmetric lemniscates $E(z^n - 1, c)$ are of particular interest. To address a conjecture by G. Piranian, J. Butler derived an explicit analytic representation for the length of symmetric lemniscates and discovered that the length is not monotonic with respect to $c$. We have derived an analogous analytic representation for the area of symmetric lemniscates and have studied its geometric properties. Using the analytic representations for the length and area of symmetric lemniscates, the isoperimetric quotient and the area-squared inradius quotient in the context of symmetric lemniscates have been investigated as well. (Received August 25, 2009)