1042-57-208   **Elizabeth Denne*** (`edenne@email.smith.edu`), Department of Mathematics & Statistics, Smith College, Northampton, MA 01063, **Jason Cantarella**, University of Georgia, Athens, GA , and **John McCleary**, Vassar College, NY. *Polygons inscribed in simple closed curves.*

In 1911 Toeplitz asked whether a simple closed curve in $\mathbb{R}^2$ has four points which form the vertices of a square? The answer is yes, provided the curve belongs to certain regularity classes. In this talk we present results on this and a related question: given a simple closed curve γ in $\mathbb{R}^n$ and a fixed point p_1 on γ, can we find a sequence of points $p_2, \ldots, p_n$ inscribed in γ so that the n distances $d(p_i, p_{i+1})$ are in a prescribed ratio? This is joint work with Jason Cantarella and John McCleary. (Received August 19, 2008)