1023-Z1-1395 **Robert D. Poodiack*** (rpoodiac@norwich.edu), Department of Mathematics, 158 Harmon Drive, Northfield, VT 05663. *Circles, Diamonds, and Squares: A New Trigonometry for a New π.* Preliminary report.

The constant π is defined to be the ratio of the circumference of a circle to its diameter. If we look at different metrics, though, the unit circle looks quite different than what we're used to and, in fact, the value of π is different under various metrics on $\mathbb{R}^2$. Each of these new π's gives rise to a new version of trigonometry. (For example, $\pi = 4$ under the ℓ^1 metric. The trigonometry found is the typical taxicab trigonometry.) We will look at versions of trigonometric functions under the ℓ^p metrics, and also examine various calculus formulas involving our new friends. (Received September 25, 2006)