1067-Z1-1728 **Vincent Coll**, **Jeff Dodd** and **Michael Harrison*** (mah5044@gmail.com). *Archimedean Hypersurfaces.*

We develop a new class of hypersurfaces in n-dimensional Euclidean space which are defined by a single function and contain hypersurfaces of revolution as a proper subclass. These hypersurfaces are Archimedean in a sense suggested by Rudin in that they satisfy an equizonal type property of a sort well-known to hold for the sphere; that the surface area of a zone between two parallel planes depends only on the distance between the planes. The analogous property for hypersurfaces of revolution in higher dimensional Euclidean spaces has been investigated by the first two authors, where it was shown that for each $n \geq 2$, there is just one smooth n-dimensional hypersurface of revolution in $(n+1)$-dimensional Euclidean space that satisfies the equal area zones property. These hypersurfaces of revolution are called equizonal n-ovaloids and generalize the sphere in a previously undiscovered fashion. Making use of these ovaloids, we develop new Archimedean Hypersurfaces, and though not necessarily of revolution, they maintain interesting equizonal type properties. Using special functions, these objects can be fully mensurated. (Received September 21, 2010)