1106-L5-1925 **Paul Zorn*** (`zorn@stolaf.edu`). *Complex Curve Maps.*

The standard elementary functions of single-variable calculus are easily represented graphically as curves in the $xy$-plane. But the ease of plotting these functions has costs, including a too-rigid identification of functions with plane curves. These curves may also work poorly to illustrate subtler ideas, such as discontinuity, singularities, and, crucially, functions viewed as mappings.

In complex analysis the notion of function as mapping is crucial, both pedagogically and to the nature of complex functions themselves. Analytic functions really *are* mappings with important mapping properties, such as conformality and behavior near singularities.

There are many ways to use technology to visualize complex functions $w = f(z)$. The simple curve mapping tool I'll illustrate does what the name suggests: It shows colored images in the complex $w$-plane of simple colored spirals in the $z$-plane. (Color is used to indicate the angular coordinate of a given input.) Despite its simplicity, the tool can be used to illustrate various complex analytic phenomena, including conformality, preservation of orientation, and the behavior of functions that are differentiable or real-analytic, but not analytic in the complex sense. (Received September 15, 2014)