# Unit disks in the plane for the d_p − metrics

The following graph shows the boundaries of the unit disks in the upper half plane with respect to the p − metric for various values of p as indicated in the chart to the right of the graph. As p goes to infinity, the boundary curve converges to the (portion of the) square outlined in gray, and the entire region expands, looking more and more like the solid square (and becoming the solid square in the limit). Of course, one obtains the entire unit disks in the plane by taking the unions of the indicated sets and their mirror images with respect to the x − axis.
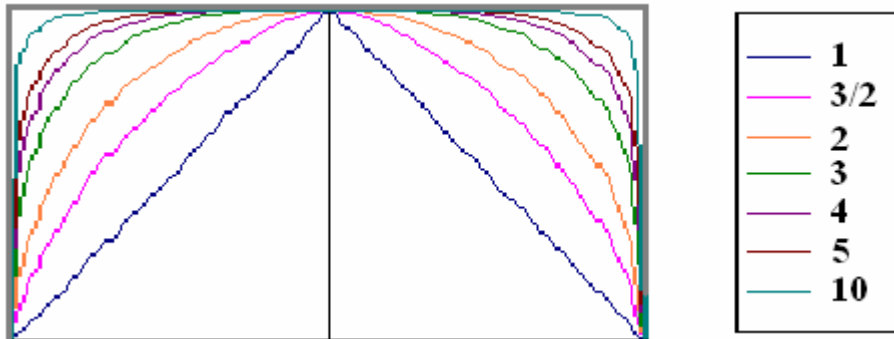
By construction (and Minkowski's Inequality) each of these unit disks is a compact convex set, and its interior is the set of points whose p − distance from the origin is strictly less than 1.