Exercises

11.21 [10S] Prerequisites: [0ZX], [19C], [10F]. Let $r > 0$; if $p \in [1, \infty]$ then the ball $B_r^p = \{\|x\|_p < r\}$ is convex; also $B_r^p \subseteq B_r^{\tilde{p}}$ if $\tilde{p} > p$. In the case $n = 2$ of planar balls, study graphically the shape of the balls as p varies. Are there points that are on the border of all balls?

Solution 1. *[10T]*