

There are two important metrics that we will use in CSE 356.
Consider two points P and Q , where $P = (p_x, p_y)$ and $Q = (q_x, q_y)$

The first is the usual Euclidean metric, d_E , given as

$$d_E(P, Q) = \sqrt{(p_x - q_x)^2 + (p_y - q_y)^2}.$$

The second is the 'taxi-cab' metric, d_T , given as

$$d_T(P, Q) = |p_x - q_x| + |p_y - q_y|.$$

The metric d_E has a unit ball given by a circle of radius 1 about the origin.

The metric d_T has a unit ball given by a square of side 1 about the origin, rotated to have its sides at 45 degrees to the major axes.