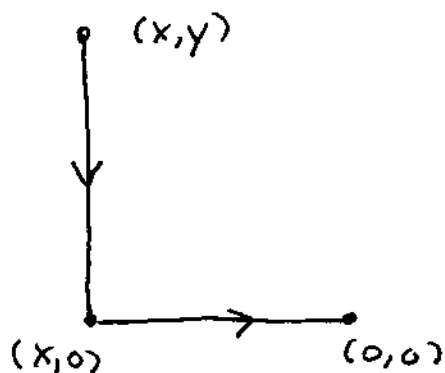


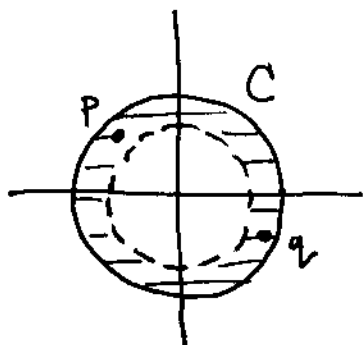
The path $\gamma_p: [0,1] \rightarrow B$ is just the straight line path from (x,y) to $(x,0)$ followed by the straight line path from $(x,0)$ to $(0,0)$.

i.e



(c) $C = \{ (x,y) \in \mathbb{R}^2 \mid 1 < x^2 + y^2 \leq 2 \}$.

i.e.



It is clear that C is path connected but ~~let~~ let's prove it.

Let $p, q \in C$. We can use polar coordinates to describe these points. That is

$$p = (r_1, \theta_1) \text{ and } q = (r_2, \theta_2) \text{ where}$$

$$1 < r_1, r_2 \leq \sqrt{2} \text{ and } 0 \leq \theta_1, \theta_2 < 2\pi.$$