

**Problem**

- (a) Give an example of a path  $\gamma : [0, \epsilon) \rightarrow \mathbb{R}^2$  such that the angle does not exist in 0.
- (b) Prove that the angle  $\angle(\gamma, \gamma)$ , if it exists, is always 0.
- (c) Prove that if  $\gamma$  is geodesic, then the angle  $\angle(\gamma, \gamma)$  always exists.