

## NOTES 12/6

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**Lemma:** There exists no smooth function  $\overline{B} \rightarrow \partial B$  which is the identity value restricted to  $\partial B$ .

**Corollary: Brouwer Fixed-Point Theorem** For  $f : \overline{B} \rightarrow \overline{B}$  continuous,  $\exists$  a fixed point.

**Proof:** Assume otherwise. Then