

# Algebraic Topology Problems

Part III preparatory notes based on Algebraic Topology Problems by Many Authors

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Part III requires a load of complex and interesting Mathematics that I have not covered thus far in my course and will not. These collections of notes are my thoughts on topics and needed intuition to bits of Mathematics. They aren't here to teach or to be used a stand alone text.

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## 0 Problem 0

**Exercise.** Let  $a : S^n \rightarrow S^n$  be the antipodal map,  $a(x) = -x$ . Show that  $a$  is homotopic to the identity map when  $n$  is odd. [Try  $n = 1$  first.]<sup>1</sup>

**Solution.**

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<sup>1</sup>Cambridge Algebraic Topology Part ii Example Sheet I.I