Problem 1 (3.1.6a)**.** *Directly from the definitions, compute the simplicial cohomology groups of* $S^1 \times S^1$ *with* $\mathbb{Z}$ *and* $\mathbb{Z}_2$ *coefficients, using the* Δ*-complex structure given in* §2.1.

Proof. □

Problem 2 (3.1.8a)**.** *Compute* $H^i(S^n; G)$ *by induction on* n *in two ways: using the long exact sequence of a pair, and using the Mayer-Vietoris sequence.*

Proof. □

Problem 3 (3.1.9)**.** *Show that if* $f : S^n \to S^n$ *has degree* d *then* $f^* : H^n(S^n; G) \to H^n(S^n; G)$ *is multiplication by* d*.*

Proof. □