Problems

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1. Prove that $\Omega^*_{dR}(\Delta^n) \cong C^\infty(\Delta^n) \otimes_{\mathfrak{A}^0_n} \mathfrak{A}^*_n$.

2. Define the Lie operad in chain complexes.

3. For A a $\mathbb{Q}$ commutative algebra, and $a, b \in A$ define $[a^\vee, b^\vee] \in AQ^*(A)$

4. Show that $id_{dgLie^{>0}} \to \tilde{P}_n$ agrees up to the n'th order.

5. Give an example of a space X such that $C^*(X; \mathbb{Q})$ is not a commutative algebra

6. Define the multiplication on $\mathcal{A}^*(K) = Hom_{sSet}(K, \mathfrak{A}^*_\bullet)$

7. Prove that $H^*(K) \cong H^*(\mathcal{A}^*(K))$.