Sheet 7

Question 7.1

What are the cohomology groups and homotopy groups of the following cdga's?

1. $\mathbb{Q}\langle y, dy \rangle$

2. $\mathbb{Q}\langle x \rangle$

3. $\mathbb{Q}\langle x, z \mid dz = x^5 \rangle$ with $|x|$ even

4. $\mathbb{Q}\langle a, b, c \mid dc = ab \rangle$ with $|a| = |b| = |c| = 1$

The augmentation is always the unique map sending all generators to 0.

Question 7.2

Write down all the 1-simplices and 2-simplices of the simplicial product $\Delta[1] \times \Delta[1]$.

Question 7.3

Show that the realization of $\Delta[n]$ is Δ^n.

You should first think about what happens to degenerate simplices.