

TOPOLOGY I

Exercise sheet no.11

14.07.2005

Exercise 1: Let $A \neq \emptyset$. Show that the Mayer-Vietoris sequence can be terminated in

$$\dots \xrightarrow{\Psi_1} H_1(X) \xrightarrow{\Gamma_1} H_0^\#(A) \xrightarrow{\Phi_0} H_0^\#(X_2) \oplus H_0^\#(X_1) \xrightarrow{\Psi_0} H_0^\#(X) \xrightarrow{\Gamma_0 \equiv 0} 0.$$

Exercise 2: Let G_r , $r \geq 1$, be the r -leaved rose. Show that (G_{r+1}, G_r, S^1) , $r \geq 1$, is an exact triad.

Exercise 3: Let s_r , $r \geq 0$ be a subspace of S^n which is homeomorphic to S^r , e_r be a closed r -cell. Calculate $H_q^\#(\mathbb{R}^n \setminus e_r)$, $H_q^\#(\mathbb{R}^n \setminus s_r)$, for all q, n, r .