

Homework #4
Due Monday, February 18

1. Exercise 3.10.
2. Exercise 3.12.
3. Exercise 3.13.
4. Exercise 4.9. Do this in the following way: Assume that F_1, \dots, F_n is a shelling order of the facets of a simplicial d -polytope. Prove that for every $k = 1, \dots, n$ there is a face G_k in $\mathcal{F}(F_k)$ such that $\mathcal{F}(F_k) \cap (\mathcal{F}(F_1) \cup \dots \cup \mathcal{F}(F_{k-1}))$ is the set of all faces of F_k not containing G_k . Then show that

$$h_i(S_k) = \begin{cases} h_i(S_{k-1}) + 1, & i = f_0(G_k), \\ h_i(S_{k-1}), & \text{otherwise.} \end{cases}$$

5. Exercise 5.6.
6. Exercise 6.1.