

MATH 215 C
Homework Assignment # 4
Due Tuesday, May 18th

Madsen-Tornehave (Problems are at the back of the book.)

p. 261-262 # 12.1, 12.3, 12.4, 12.6, 12.7, 12.8

Remark: In problems 4,6,7, and 8 in chapter 12, you should replace “deRham cohomology” with “homology with real coefficients”. In particular, replace $H^k(M)$ by $H_k(M; \mathbf{R})$ in problems 4,6,7,8 and let b_j denote the dimension of $H_j(M; \mathbf{R})$ in problems 6,7,8. These problems then become problems about understanding how the homology can change when you add a λ -cell near a non-degenerate critical point, where λ is the index of the critical point. You may want to refer back to last quarter’s notes and the Hatcher text (recall Mayer-Vietoris sequence).

p. 243-245 # 2.5, 2.6, 2.9, 2.11