2020-06-18

Question 1. Can you embed the following groups into F_2?

- F_3
- F_∞

Question 2. How to recover d_i's in classification of finitely generated abelian groups?

Question 3. Show that free R-modules are projective

Question 4. Show that if P is projective then $\otimes P$ preserves injectivity of maps.

Question 5. Show that $\mathrm{Hom}_{S-mod}(S \underset{R}{\otimes} M, N) = \mathrm{Hom}_{R-mod}(M, N_R)$.

Question 6. Check why dividing by $\{m \otimes m : m \in M\}$ implies that $m_1 \otimes m_2 + m_2 \otimes m_1 = 0$ but the opposite doesn't hold in characteristic 2

Question 7. Assume M is free of rank n. What is $\Lambda^i M$?

Question 8. Given $f : M \to M$ a homomorphism of R-modules, write down two "interesting" maps

$$\Lambda^i M \to \Lambda^i M$$

induced by f. Interpret these maps when $i = n$.