

Fall 2021, Math 620: Week 5 Preliminary Problems
Due: Thursday, September 23rd, 2021
Relations and Group Presentations

Preliminary problems. These problems should be completed before discussion on Thursday.

(P1) We have seen in class that

$$D_8 = \langle r, f \mid r^4, f^2, rfrf \rangle = \{e, r, r^2, \dots, r^7, f, rf, r^2f, \dots, r^7f\}.$$

Identify which element of D_8 above equals $r^4 f^7 r^{-3} f^3 r^2$.

(P2) Determine if the subgroup $\langle a \rangle = \{a^n : n \in \mathbb{Z}\} \subset F_2$ is normal.