Math 71 Homework
Due Monday, October 31st.

- Page 116: Problems 2 and 3 (from section 4.1).

- And work the following problem:

1. (a) Show that there is a well-defined homomorphism $\phi : \mathbf{Z}/18/Z \to \mathbf{Z}/12\mathbf{Z}$ which sends $\bar{1}$ to $\overline{10}$. (More explicitly, ϕ maps the class of 1 in $\mathbf{Z}/18\mathbf{Z}$ to the class of 10 in $\mathbf{Z}/12\mathbf{Z}$.

  (b) Show that there is no such map sending $\bar{1}$ to $\bar{3}$.

  (c) Compute the kernel of ϕ.

  (d) Identify $\operatorname{Im} \phi$ with a well-known group using the Third Isomorphism Theorem.