

**Math 112-40, Mr. Church, Homework 10**  
Due at the beginning of class on Friday, November 20.  
Please staple your homework.

The questions I had planned for this homework require material that we won't cover until Friday, so here is a very short assignment in the meantime. The other questions will be on Homework 11, due Monday, November 23.

1. Exercise 6.13.
2. (a) In the group  $\mathbb{Z}_5$  under addition, how many times do you have to add  $\bar{2}$  to itself to get  $\bar{0}$ ?
- (b) In the group of units  $U(\mathbb{Z}_5)$  under multiplication, how many times do you have to multiply  $\bar{2}$  by itself before you get  $\bar{1}$ ?
- (c) In the group  $\mathbb{Z}_7$  under addition, how many times do you have to add  $\bar{2}$  to itself to get  $\bar{0}$ ?
- (d) In the group of units  $U(\mathbb{Z}_7)$  under multiplication, how many times do you have to multiply  $\bar{2}$  by itself before you get  $\bar{1}$ ?