

Homework 1 - Math 546H, Frank Thorne (thornef@mailbox.sc.edu)

Due Thursday, September 11

Please read Saracino through Chapter 3, although you can skip the part about \mathbb{Z}_n for now.

- (1) Saracino, Chapter 4: Do 1, 2, 3, 5, 6, 8, 9, 10, 11, 12, 14, 15(a), but bare answers and/or extremely brief explanations are fine.
- (2) Saracino, Chapter 4: 16, 19, 20, 21, 22, 33.
- (3) Let S_4 denote the group of bijective functions from the set $\{1, 2, 3, 4\}$. What are all possible orders of elements of S_4 ?
(Hint: don't write down all 24 elements and compute their orders. That is much too tedious!)
- (4) (**Bonus**) Do the same for S_{10} , defined in the analogous way.