

Math 453: Homework # 5

Due Friday, 22 February 2019 in class

In writing your proofs, fully explain all the important steps. Use full and grammatically correct English sentences. Be clear and concise.

Exercise numbers are from the end-of-section exercise sets in the **2002** reissue of *Elementary Number Theory* by James K. Strayer.

There are hints for items 2, 3, and 4 in the section at the end of the textbook.

1. (5 points) Exercise Set 2.4, # **46** (**Correction:** Let p be a prime number **larger than 2**. *Hint:* Here it doesn't matter if you reduce to lowest terms or not. The denominator of the single fraction is at most $(p - 1)!$, which is not divisible by p . Thus the factor p of the numerator is never canceled by the denominator.)
2. (5 points) Exercise Set 2.4, # **47 (a)**
3. (5 points) Exercise Set 2.4, # **48**
4. (5 points) Exercise Set 2.4, # **49**
5. (5 points) Exercise Set 2.5, # **58 (a) and (b)**