

Math 453: Homework # 11

Due Friday, 12 April 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.

1. (5 points) Exercise Set 4.3, # **32**
2. (5 points) Exercise Set 4.3, # **33**
3. (5 points) Exercise Set 4.3, # **35 (b)**
4. (5 points) Exercise Set 5.1, # **5 (a)** (*Hint*: Let $k = \text{ord}_m a$, $\ell = \text{ord}_m b$, and $n = \text{ord}_m(ab)$. Then $1 \equiv (ab)^{kn} \equiv b^{kn} \pmod{m}$. What does this imply about ℓ in relation to kn ?)
5. (5 points) Exercise Set 5.1, # **7 (a)**