Math 321 Fall 2016
Homework 2
Due: September 9, 2016

You are welcome to work together but everyone needs to write up **distinct** solutions. If you use any books outside of our textbook or other people, please make sure to give them credit. Make sure your solutions are complete. If your handwriting is atrocious, I am happy to give you a basic introduction to LaTeX.

1. Suppose a and b are integers that divide the integer c. If a and b are relatively prime, show that ab divides c. Show, by example, that if a and b are not relatively prime, then ab need not divide c.

2. Prove that every prime greater than 3 can be written in the form $6n + 1$ or $6n + 5$.

3. # 4.2 Also, prove that G is a group.

4. These will be 2 points each. Be sure to explain your work.
   (a) # 4.5
   (b) # 4.7

5. # 4.12

6. # 4.19

7. # 4.20

8. # 4.32