

## Math 209-16 Homework #1

**Due Date: Sept. 15, 2022**

Read Chapter 1 of the textbook.

1. (1 point) Problem 13, page 17 of the textbook.
2. (2 point) Problem 32, page 18 of the textbook.
3. (2 points) Problem 14, page 29 of the textbook.
4. (2 points) For any positive integer  $n > 1$ , prove that  $\frac{1}{2} + \frac{1}{3} + \cdots + \frac{1}{n}$  is not an integer.  
(see Problem 36, page 32 of the textbook)
5. (3 points) Problem 49, page 20 of the textbook.
6. (2 points) Use the result in Problem 5 (i.e., Problem 49, page 20 of the textbook) to show that there are infinitely many primes.
6. (3 points) Problem 51, page 20 of the textbook.
7. (2 points) Problem 30, page 31 of the textbook.
8. (3 points) Problem 31, page 31 of the textbook.