Math 209-16 Homework #2

Due Date: 5pm, Sept. 27 (TUE), 2022

Read Sections 2.1 and 2.2 of the textbook.

1. (1 point) Problem 18, page 57 of the textbook.

2. (1 point) Problem 30, page 57 of the textbook.

3. (2 points) Problem 45, page 58 of the textbook.

4. (2 points) Problem 46, page 58 of the textbook.

5. (2 points) Problem 49, page 59 of the textbook.

6. (2 points) Problem 56, page 59 of the textbook.

7. (3 points) Somebody incorrectly remembered Fermat's little theorem as saying that the congruence $a^{n+1} \equiv a \pmod{n}$ holds for all a if n is prime. Describe the set of positive integers n for which this property is in fact true. That is, determine all positive integers n such that

$$a^{n+1} \equiv a \pmod{n}$$

for all $a \in \mathbf{Z}$.

8. (2 points) Problem 14, page 63 of the textbook.

9. (3 points) Problem 15, page 63 of the textbook.

10. (2 points) Problem 16, page 63 of the textbook.