

# Homework Assignment 7

Due: Friday, December 8

1. (a) Find all integers  $x$  that satisfy

$$374x \equiv 204 \pmod{4624}.$$

- (b) Solve the system

$$\begin{cases} x \equiv 13 \pmod{78} \\ x \equiv 313 \pmod{350}. \end{cases}$$

- (c) Solve the linear congruence system

$$\begin{cases} 115x \equiv 41 \pmod{78} \\ 144x \equiv 141 \pmod{350}. \end{cases}$$

2. Exercise 5.4(a) in the lecture notes.

3. Exercise 5.5 in the lecture notes.

4. Exercise 5.6 in the lecture notes.

5. Exercise 5.7 in the lecture notes.

6. Exercise 5.8 in the lecture notes.

7. Exercise 5.9 in the lecture notes.

8. Exercise 5.10 in the lecture notes.

9. Solve the system

$$\begin{cases} 2x \equiv 18 \pmod{29} \\ 3x \equiv 31 \pmod{37} \\ 8x \equiv 17 \pmod{57}. \end{cases}$$