1. Use the Euclidean algorithm to find \((34, 126)\) and write it as a linear combination of 34 and 126.

2. The Euler \(\varphi\)-function is defined as follows: for \(n \in \mathbb{Z}^+\) let \(\varphi(n)\) be the number of positive integers \(a \leq n\) with \(a\) relatively prime to \(n\). Find \(\varphi(n)\) for all positive integers \(n \leq 20\).

3. Problem number 35 on page 10 of your text.

4. Prove that if \(k\) is an odd integer, then \(k^2 \equiv 1 \pmod{8}\).

5. Numbers 22, 25, 27, and 28 on page 19 of your text.

6. Numbers 30 and 32 on page 19 of your text.

7. Number 36 on page 19 of your text.