Do the following exercises from the text:

Section 1.7: 6, 8

Section 2.1: 4

Section 2.3: 2, 4, 14

Section 2.4: 1(c), 4, 5, 8

Supplemental Problem: (a) If d and n are positive integers such that $d \mid n$, prove that $(2^d - 1) \mid (2^n - 1)$.

(*Hint:* Use the identity $x^k - 1 = (x-1)(x^{k-1} + x^{k-2} + \cdots + x + 1)$.)

(b) Verify that $2^{35} - 1$ is divisible by 31 and 127.