Assignment for Tuesday, 3/20, & Thursday, 3/22.

I. Exercises from the book:
Section 7.2 → 3, 4de, 7, 10, 11a, 13, 14, 16, 17, 20.
Section 7.3 → 3, 4, 5, 8a, 10.
Section 7.4 → 1, 4, 5, 10, 11.

II. Supplementary Exercises:

25. If n-1 and n+1 are twin primes with n > 4, then show that \( \phi(n) \leq \frac{n}{3} \).

26. [Compare to #17b in Section 7.2]
For a fixed positive integer k, if \( \phi(n) = k \) has a unique solution, say \( n = n_0 \), then show that \( 36 \mid n_0 \).

27. Observe that:
\[
\begin{align*}
1 + 2 &= \frac{3 \cdot 2}{2} ; \\
1 + 3 &= \frac{4 \cdot 2}{2} ; \\
1 + 2 + 3 + 4 &= \frac{5 \cdot 4}{2} ; \\
1 + 5 &= \frac{6 \cdot 2}{2} ; \\
1 + 2 + 3 + 4 + 5 + 6 &= \frac{7 \cdot 6}{2} ; \\
1 + 3 + 5 + 7 &= \frac{8 \cdot 4}{2} .
\end{align*}
\]

Guess a theorem, state it precisely, and prove it.