Assignment for Tuesday, 2/20

I) Exercises from the book:

Section 4.4 → 17, 19, 20b.

Section 5.2 → 5, 9, 10b, 13, 14, 15a

II) Supplementary Exercises:

(19) The converse to ~~the~~ Fermat's Theorem (Theorem 5.1) is also true in the following sense:

Show that: If $n \geq 2$ and for all a, $1 \leq a \leq n-1$,
$$a^{n-1} \equiv 1 \pmod{n},$$
then n must be a prime.

(Note that Carmichael numbers, e.g. 561, are counterexamples for a similarly worded converse to the corollary of Theorem 5.1)

III) Optional Exercises:

(8) Find the set of all positive integers n with the property that the set
$$\{n, n+1, n+2, n+3, n+4, n+5\}$$
can be partitioned into two sets such that the product of the numbers in one set equals the product of the numbers in the other set.