Written homework. Due in writing, at the beginning of class,

Thursday, September 8. 1.46, 1.49, 1.56, 1.68(ii), 1.71.

Warmup exercises. To present in class

Tuesday, September 6. 1.68(i), 1.69.

Thursday, September 8. 2.1, 2.13.

Reading assignment. Read sections 2.1 and 2.2, and be ready to answer the following reading questions.

1. What is the most interesting result you have seen proved by induction?

2. Can you use induction to discover results?

3. Why are there two results (Theorems 1.21 and 2.8) with the title "Euclid's Lemma"? How are they related?

4. In the proof of Theorem 2.10 (Fundamental Theorem of Arithmetic), why do we assume
$$p_1 \cdots p_m = q_1 \cdots q_n?$$

5. Illustrate Corollary 2.14 with a "good" example.

6. Why do we need "strong" induction to prove Proposition 2.19?

7. Why would we want to use power series to solve differential equations?

8. Redo Example 2.21 replacing 2 by 3. In other words, start with the differential equation
$$y'' = y' + 3y.$$

9. What are all the different interpretations of $\binom{n}{r}$ are given in the textbook? Do you know of any others? For each of these interpretations, explain why (if you can) the recursive relationship in Lemma 2.23 holds.