

**Math 55: Discrete Mathematics, Fall 2008**  
**Reading and Homework Assignment 5**

**Reminder:** The first midterm exam is Friday, Oct. 3, covering material on homework assignments 1 through 4. The exam will be held in two rooms:

Last Names A-K in the usual lecture room (2060 Valley LSB)  
Last Names L-Z in 120 Latimer

Bring scratch paper. You may use one sheet of notes (written on both sides). No other notes, books, calculators or computers may be used. Please arrive early so we can distribute exams. The exam will start promptly at 12:10.

Reading:

Lectures 14 & 15: 4.1, 4.2

Homework (due Monday, 10/6):

Odd-numbered self-checking exercises:

4.1: 3, 15, 19, 21, 49

4.2: 7, 11, 15

Problems to hand in:

4.1: 10, 22, 28 (using induction), 48

(A) Find a proof not using induction of the result in Exercise 28.

(B) Use mathematical induction and Lemma 1 in Section 3.7 to prove Lemma 2 in Section 3.7. (This completes the proof in Section 3.7 of the uniqueness of prime factorizations, and when combined with Section 4.2, Example 2, completes the proof of the Fundamental Theorem of Arithmetic.)

4.2: 8, 10, 16

[there is a typo in the second sentence of Exercise 10, which should read “The bar, or a smaller rectangular piece. . .”]