

HW #2

Kerry Ojakian's CSI 35 Class

Due Date: Thursday September 18 (beginning of class)

General Instructions:

- Homework must be stapled, be relatively neat, and have your name on it.
- Use tutors, work with other students, but ... don't copy!

The Assignment

After first three, rest of problems are from the 8th Edition of Rosen.

1. Prove that $5 + \cdots + 5 = 5n$ for positive integers n (i.e. 5 added together n times is $5n$). You must use induction! (not logically necessary, but just for practice).

2. Prove that $1 \cdot 1 \cdots 1 < 2$ (i.e. 1 times itself n times is less than 2). You must use induction! (not logically necessary, but just for practice).

3. Prove that $2^n < 3^n$ for positive integers n . You must use induction! (not logically necessary, but just for practice).

4. Section 5.1 (p. 350). Equalities: 3, 4, 9.
5. Section 5.1 (p. 351). Inequalities: 18, 19, 20.
6. Section 5.1 (p. 351). Divisibility: 32.
7. Section 5.1 (p. 352). Structural: 45.
8. Section 5.1 (p. 353). Calculus: 57.
9. Section 5.2 (p. 362, 363). Stamp Problems (strong induction): 3, 4.
10. Section 5.2 (p. 363). Strong Induction: 10.