HW #2

Kerry Ojakian's CSI 35 Class
Due Date: Tuesday February 24 (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
Do the first 3 problems in the space below. After the first three, the rest of problems are from the 8th Edition of Rosen - do aht work on separate paper and staple to this.

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).

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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).

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

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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.