Exam 2 Topics

1. DEFINITIONS

Be able to define the following items:
- even number
- odd number
- same/opposite parity for integers
- $a|b$
- prime number
- composite number
- $\gcd(a, b)$
- $\text{lcm}(a, b)$
- $a \equiv b \bmod n$
- rational
- irrational
- counterexample

2. CONVERSIONS

Given a statement, be able to form the **contrapositive** (if applicable) and/or the **negation** of the statement.

3. IMPORTANT THEOREMS FROM LECTURE

You should know these theorems and how to prove them

Proposition 1. *The number $\sqrt{2}$ is irrational.*

Proposition 2. *There are infinitely many prime numbers.*

4. HOMEWORK EXERCISES

These are good homework exercises to know how to do
- Chapter 4 # 3, 6, 16, 18
- Chapter 5 # 4, 7, 12, 19
- Chapter 6 # 2, 4, 10, 24
- Chapter 7 # 4, 8
- Chapter 8 # 8, 11, 12, 15, 21, 31
- Chapter 9 # 1, 3, 7, 15, 25, 34

5. ONE OTHER PROBLEM

There will likely be one problem you have not seen before.