

## Coverage for Exam 1

1. Logic (Sections 1.1-1.5) - *What is a proposition? a propositional function and the quantifiers that you can attach to it?*
  - *How are propositions combined to form more complex ones?*
  - *How do you verify that two compound propositions are equivalent?*
  - *How do you make inferences from statements that are known to be true?*
  - *Finally, know how to translate logical statements to English and vice versa.*
2. Proof Methods (Section 1.6 and parts of Section 1.7)
  - *What is an even/odd integer? rational or irrational number? prime or composite number? What does it mean that  $a$  divides  $b$ ?*
  - *What are the different ways of proving that a statement is true?*
  - *What is the pigeonhole principle and how do you apply it?*
3. Sets (Sections 2.1-2.2)
  - *What is a set? its subsets? its power set? its cardinality?*
  - *How do you create new sets out of old ones?*
  - *How do you prove that two sets are equal?*
4. Functions (Section 2.3)
  - *What is a function? its domain, co-domain, range? what is the image of an element? pre-image?*
  - *How do you determine if a function is one-to-one, onto or a bijection?*
  - *What are the implications when a bijection from  $A$  to  $B$  can be defined?*