Your first midterm exam will be given on Tuesday, October 3, 2006. You will need to bring a calculator to this exam. Material for the exam will be taken from sections 1C, 1D, 2A, 2B, 3A, and 3B.

1 Chapter 1

1.1 1C: Sets and Venn Diagrams
- Know how to draw two and three set Venn diagrams.
- Be able to take information about set relationships from Venn diagrams.
- Know the difference between disjoint sets, overlapping sets, and subsets.

1.2 1D: Analyzing Arguments
- Understand the difference between inductive and deductive arguments.
- Be able to determine whether a deductive argument is valid and/or sound.
- The structure of an argument is a group of premises and a conclusion. Be able to break an argument into these parts.
- Know what a conditional deductive argument is (If $p$, then $q$. If $q$, then $r$. Thus, it follows that if $p$, then $r$).
2 Chapter 2

2.1 2A: Power of Units

- Be able to convert various measurements to different units given a conversion table.

- Remember to square the conversion factor for units of area (cube volume)

- \[ \text{Speed} = \frac{\text{Length}}{\text{Time}}. \]

2.2 2B: Unit Conversions

- Be able to convert between the metric and U.S. system of units.

- Conversion factors to memorize:

  | 1 inch   | = 2.54 centimeters |
  | 1 mile   | = 1.6093 kilometers |
  | 2.205 pounds | = 1 kilogram       |
  | 1 gallon  | = 3.785 liters      |
  | 1 milliter| = 1 cubic centimeter|

- Know what the prefixes kilo \((10^3)\), centi \((10^{-2})\), and milli \((10^{-3})\) mean and know how to use them to convert metric units.

- Know how to manipulate powers of ten (multiplication and division).

- Be familiar with temperature conversions (Celsius, Fahrenheit, Kelvin).

- Energy and power: 1 Watt = 1 Joule per second.

3 Chapter 3

3.1 3A: Percentages

- Use percents to describe fractions, change, or to make a comparison.
• Know the definitions of absolute and relative change/difference.

• Understand what math is meant behind the statements “of” and “more than.”

\[
\frac{\text{New Value} - \text{Reference Value}}{\text{Reference Value}} = \text{Relative Difference.}
\]

\[
\text{Reference Value}(100 \pm P)\% = \text{New Value.}
\]

### 3.2 3B: Putting Numbers in Perspective

• Be able to put numbers into scientific notation.

• Know how to manipulate numbers in scientific notation (multiplication and division).

• Know what is meant by “on the order of.”