Ch 2 Instructions

Book Sections 2.1 - 2.7 (up to p80), 2.9

- Types of Instructions
  - arithmetic/logical
  - load and store
  - control (branch/jump)
  - instructions with immediate operand (i.e. addi)

- Instruction Formats
  - Know all 3 formats
    - The meaning of each field, number of bits in each field
  - Know the format for each instruction.

- Memory Access
  - load/store operations only
  - alignment restriction
  - Base addressing
  - PC-relative addressing
  - Pseudoindirect addressing

- Types of Operands
  - register addressing
  - memory addresses (load/store only)
    - base, offset
  - labels (branch/jump instructions)
  - immediate addressing

- Machine Code
  - Know what an assembler does
  - Be able convert MIPS assembly to machine code by hand
- (given tables with opcodes and register codes)
  - Be able to convert machine code to assembly code by hand
- (Except for addresses)

Ch. 3 Numbers

Book Sections 3.1- 3.4, 3.6 (up to p202)

- 2's complement
  - conversion to/from sign magnitude
  - subtraction in 2's complement

- Sign Extension
- Overflow
    - interupts
    - non-overflow instructions
- Multiplication
    - basic algorithm (2 positive numbers)
    - simple datapath
- Floating Point
    - normalization, biasing
    - addition/subtraction
    - adder/subtracter datapath