What does it mean to compute?

- Given problem -> solution
- Input/Output
- Number crunch?

Instruction

- Way to modify state
  - Input (r0, r1, etc)
  - Procedure (ADD, SUB, etc)
  - Output (r0, r2, etc)
- Execution model
  - Von Neumann

What is state?

- Registers
  - Few of them but fast
  - Directly addressed
  - Some have special semantics
- Main memory
  - Large, but slow
  - Direct / Indirect addressed

Instructions

- Minimum set?
  - Access your state
  - Something to change state
  - NOR, subtract-branch-less-than-zero
- Useful set
  - Basic arithmetic, logic
  - Control
    - Comparisons
    - Branches, jumps
  - Memory access

Why add more (CISC) ?

- Convey of high-level semantic knowledge to hardware for it to exploit run-time information
- Convenience for assembler programmer
- Legacy support
- Marketing
- Because you can

Does it matter (CISC/RISC)

- Not much if they are converging