Review Problem 58

When will current flow from the input to the output for each of these?

Switches SWB and SWA must be closed.

Switch SWD or SWC must be closed.
How do we build a 2:1 Mux?
Can have more than one source of a signal

Bus: T-states

Can have more than one source of a signal

Bus and T-states
Basic Gates

Nor Gate:

GND (source of 0's)

Vdd (source of 1's)

Inverter
For the Second Lesson: Remove This

**Alternative - DRAM**

A value can be read, but how written?

A pair of inverters can hold a value:

Memory
Comparing Implementation Styles

Repetitive tasks:
- Between GPUs and custom chips, but only for.
- First chip: $100, each additional chip: $1.
- Reconfigures: minutes to hours.
- Program in Verilog: much worse than C, better than custom chips.

FPGAs - EE371
- Fastest, lowest power, but generally for repetitive tasks.
- First chip: $1M, each additional chip: $1M.
- Redesigns: months to years.
- Multiple person-years to design.

Custom Chips - EE476
- General purpose, best choice if speed not an issue.
- Reconfigures: seconds to minutes.
- Easy to program.

CPUs (Computers, Microcontrollers - EE474/EE479)