Metric Prefixes

peta	P	10^{15}	1 000 000 000 000 000
tera	T	10^{12}	1 000 000 000 000
giga	G	10^{9}	1 000 000 000
mega	M	10^{6}	1 000 000
kilo	k	10^{3}	1 000
hecto	h	10^{2}	100
deca	da	10^{1}	10
one		10^{0}	1
deci	d	10^{-1}	0.1
centi	c	10^{-2}	0.01
milli	m	10^{-3}	0.001
micro	μ	10^{-6}	0.000 001
nano	n	10^{-9}	0.000 000 001
pico	p	10^{-12}	0.000 000 000 001
femto	f	10^{-15}	0.000 000 000 000 001

De Morgan's Laws

- $\overline{AB} = \overline{A} + \overline{B}$
- $\overline{A + B} = (\overline{A})(\overline{B})$

Silicon

- Si
- P-type:
  * doped with material to remove electrons (add electron holes), usually Boron (B), Aluminum (Al), or Gallium (Ga)
- N-type:
  * doped with material to add electrons, usually Antimony (Sb), Arsenic (As), or Phosphorous (P)
- Silicon dioxide: SiO_2

Transistors

- pMOS:
  * has the bubble
  * on when input is 0, off when input is 1
- nMOS
  * no bubble
  * on when input is on, off when input is off

Fabrication

- n-well: use diffusion or ion implantation
- positive lithography: expose to UV where you want to remove material
- negative lithography: expose to UV where you want to keep material

D Flip Flop vs Latch

- latch is level triggered
- flip flop is edge triggered