CMOS Inverter:

\[
V_{\text{out}} = \begin{cases} 
V_{\text{dd}} & \text{when } V_{\text{in}} \leq V_{\text{IH}} \\
0 & \text{when } V_{\text{in}} > V_{\text{IH}} 
\end{cases}
\]

\[
V_{\text{IH}} = \frac{V_{\text{dd}}}{2}
\]

How is it built?

In CMOS:

Assuming capacitive load...
**Power Dissipation:**

- Dynamic power dissipation
- Static power dissipation

Constructing CMOS Digital Circuits:

What does this circuit do? +5V

A [ ] B [ ]

Y

C_L = 200f
A=B=0 =>

A=0, B=1 =>

A=B=1
What is this circuit?

In general... inputs
Should be mutually exclusive!

PUN  Pull-up network (pFETs)

PDN  Pull-down network (nFETs)
Example: \( Y = \overline{A(B+C\overline{D})} \)