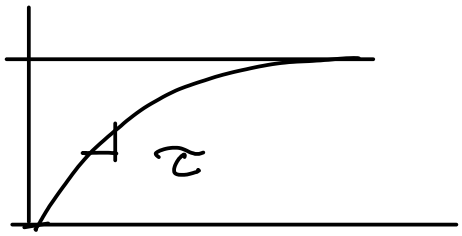
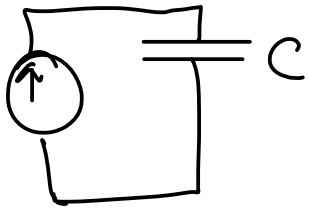
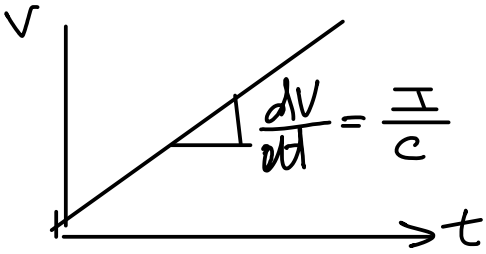
Lecture 6 (questions asked in class)

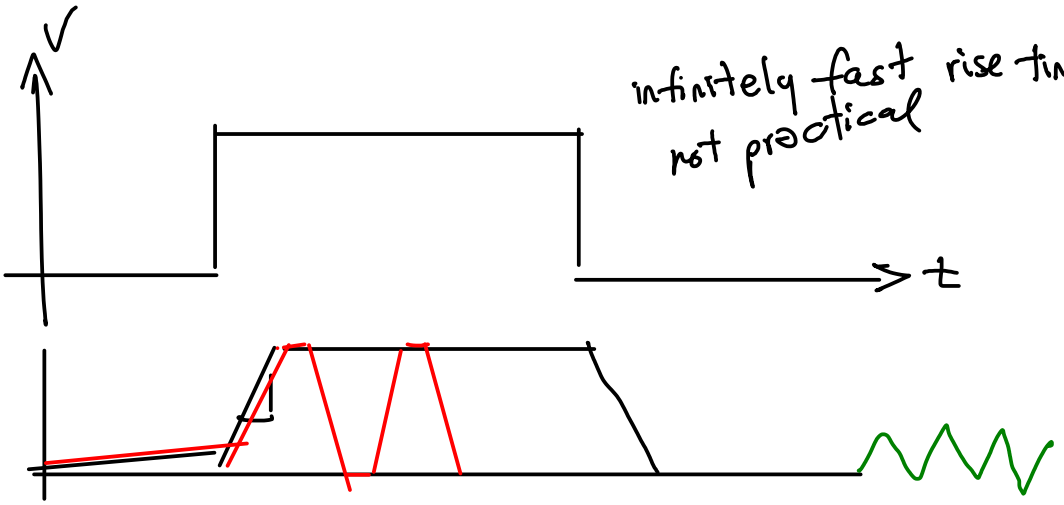
how are line capacitance, current & slew rate related?



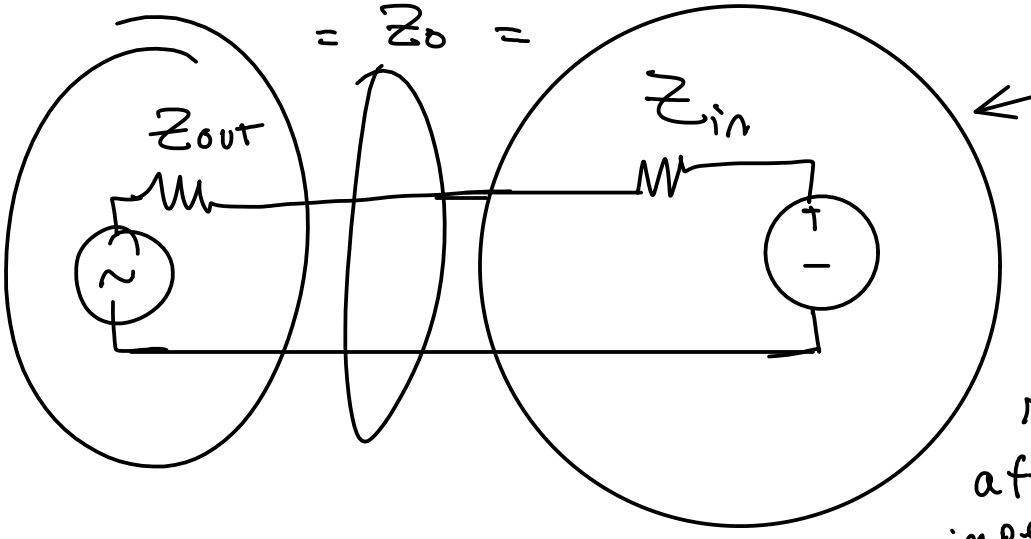
$$I = C\frac{dV}{dt}$$







infinitely fast rise time not practical



an active termination adds an ideal voltage source at receiver without affecting the load impedance.

Why offset the signalling levels?

unipolar (0-5V)

5V → 25W

0V → 0W

= 12.5W

bipolar (±2.5V)

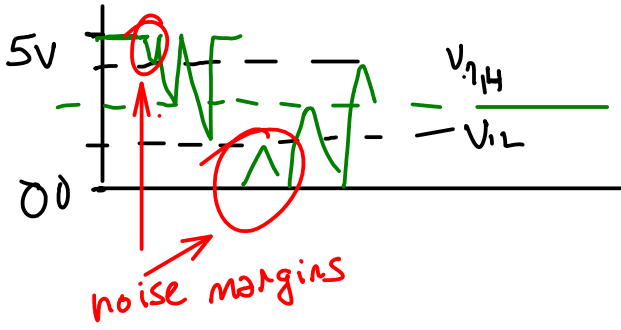
+2.5V → 6.25W

−2.5V → 6.25W

= 6.25W ← lower average power dissipation (this is good)

BUT some noise margin (2.5V)

What is noise margin if have different high & low thresholds?



← by definition, the noise voltage that would cause an error

(maybe different for high & low input levels)