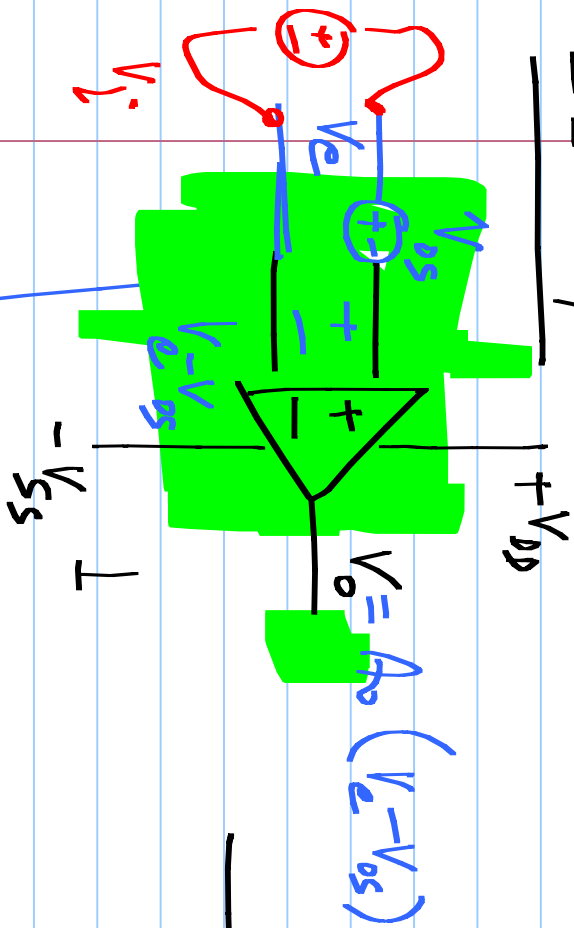
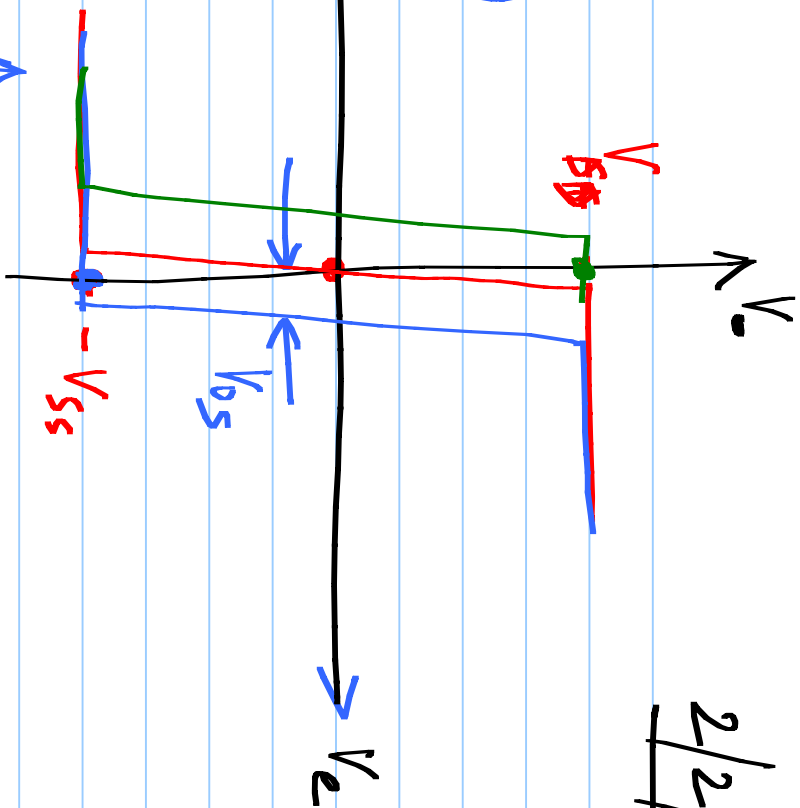


EE 2019

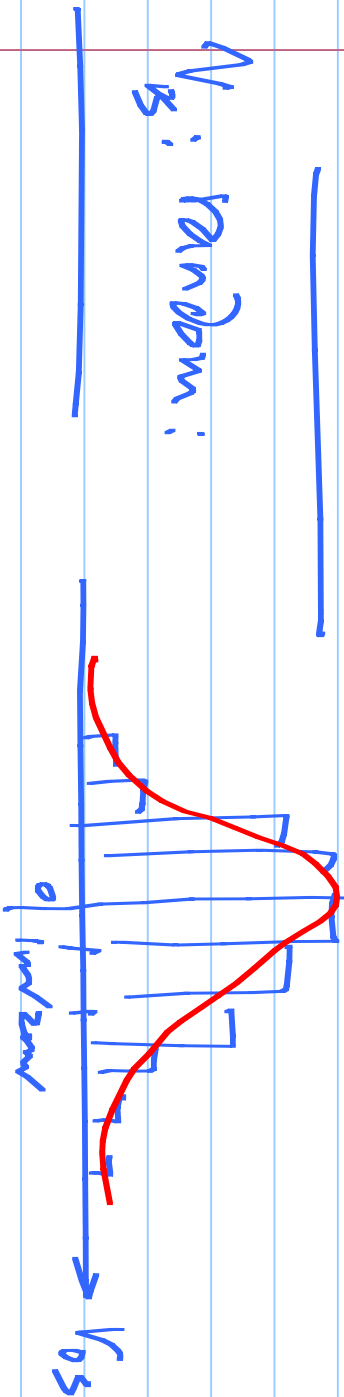
2/2/2017



$V_{os}$ : offset voltage



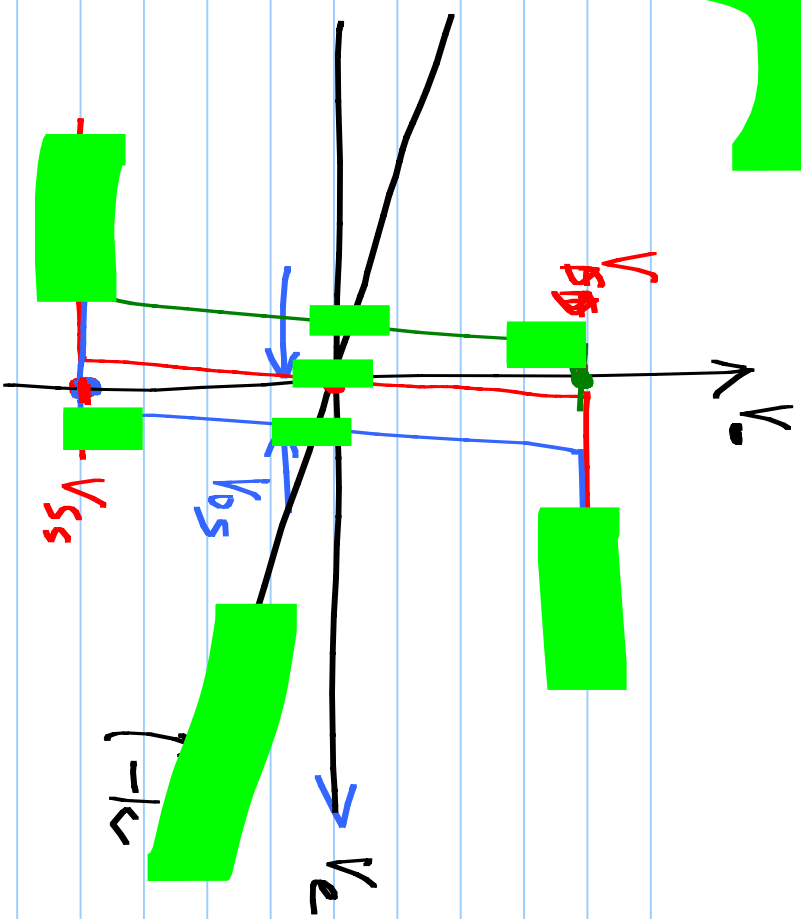
$V_s$ : random:





$$V_o = -\frac{1}{k} V_e$$

$$V_o = -k V_e$$



\* Opamp has a built-in offset (modeled by a voltage source in series with the input)

Random, Gaussian,  $\sigma_{VOS}$

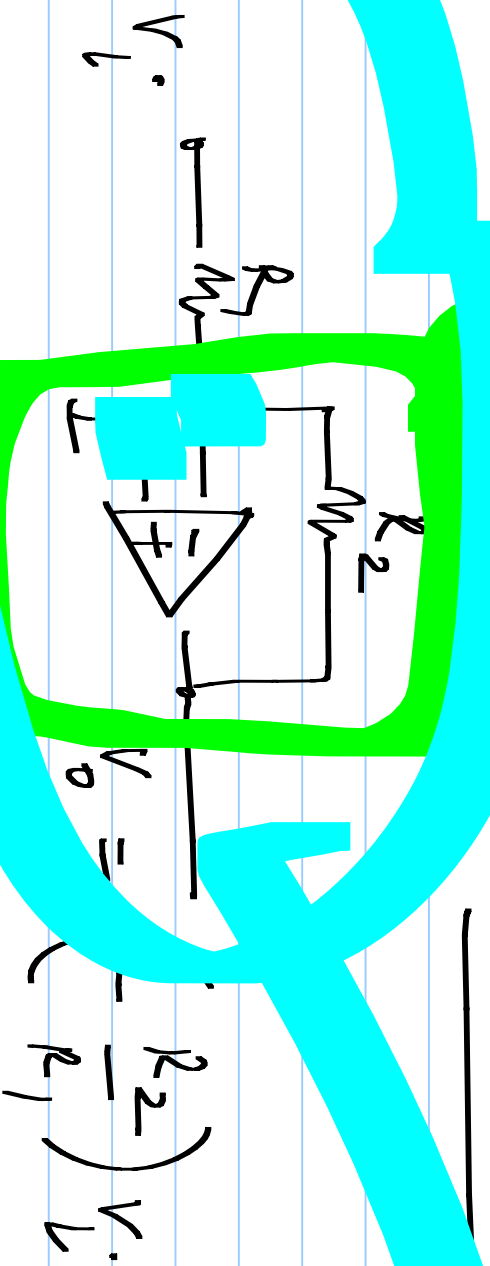
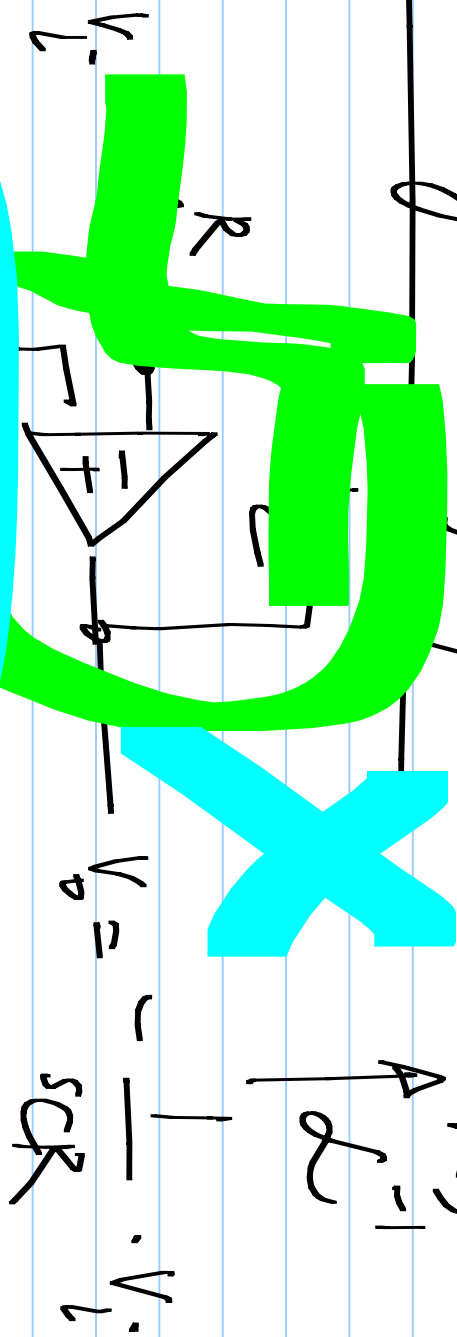
DC

\* Negative feedback around the opamp

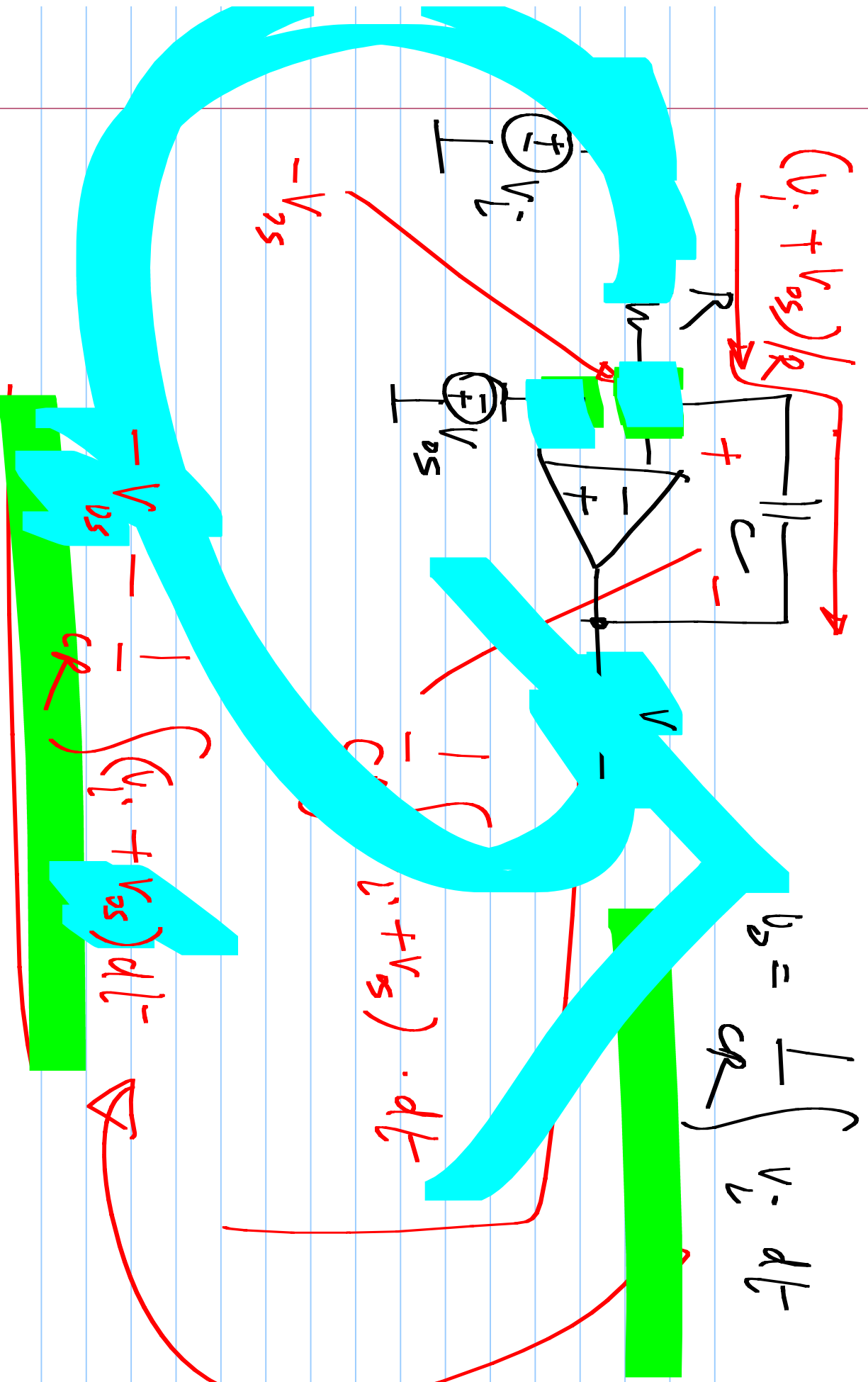
Absolutely essential to set the opamp's op. point in the high gain region

Integrator using an opamp.

$$V_o(t) = -\frac{1}{CR} \int V_i dt$$



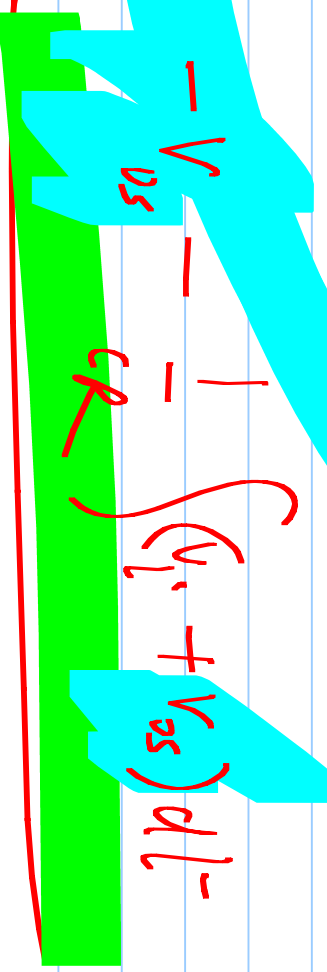
$$V_o = \left( \frac{R_2}{R_1} \right) V_i$$

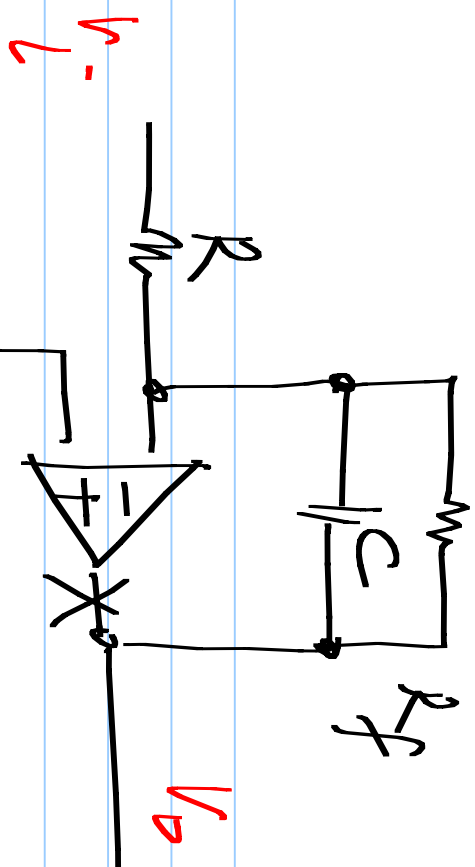


$$V_o = \frac{1}{CR} \int V_i \, dt$$

$$V_p = (V_s + V_i) \cdot dt$$

$$\int (V_i + V_s) \, dt$$





$V_s$

