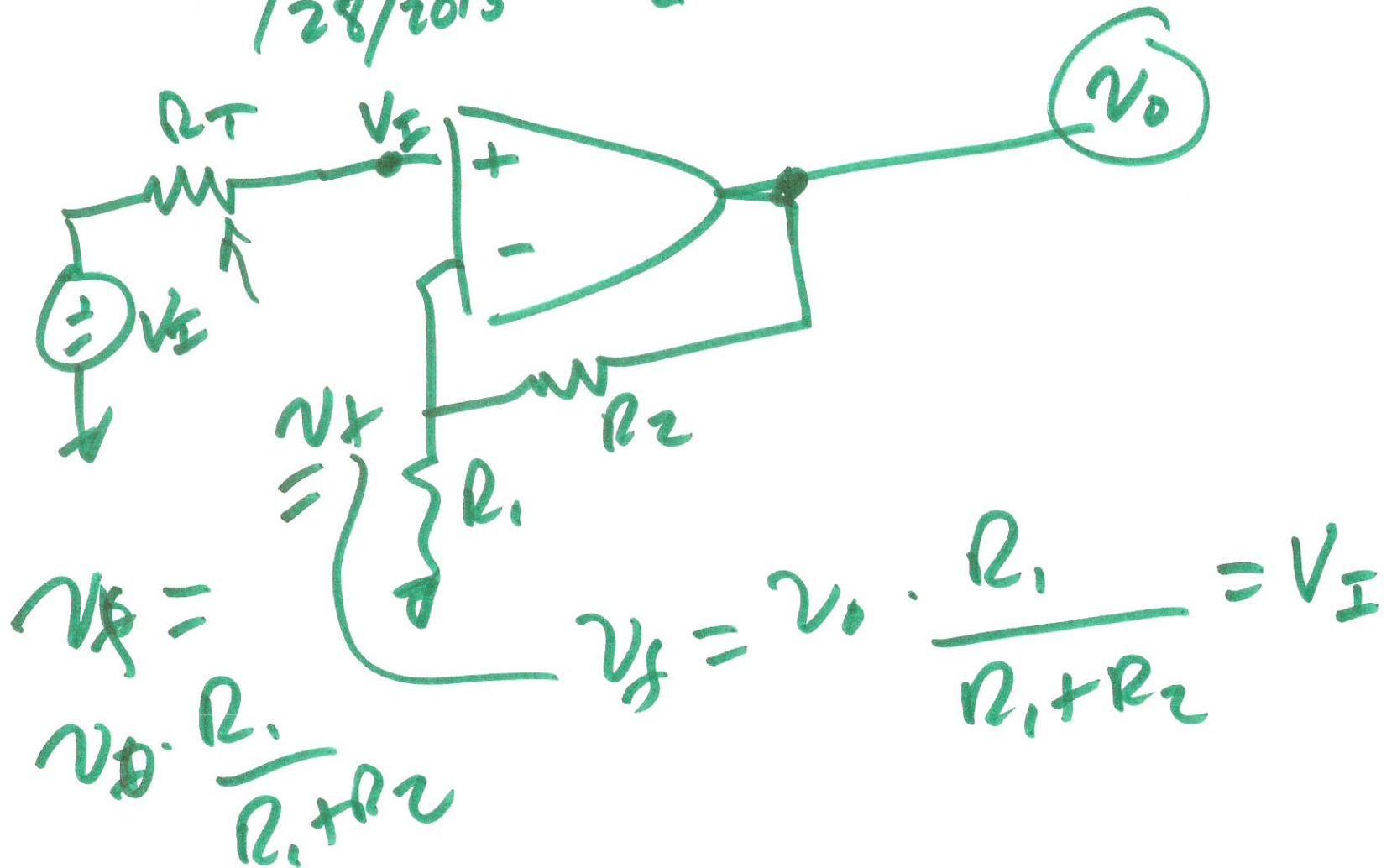
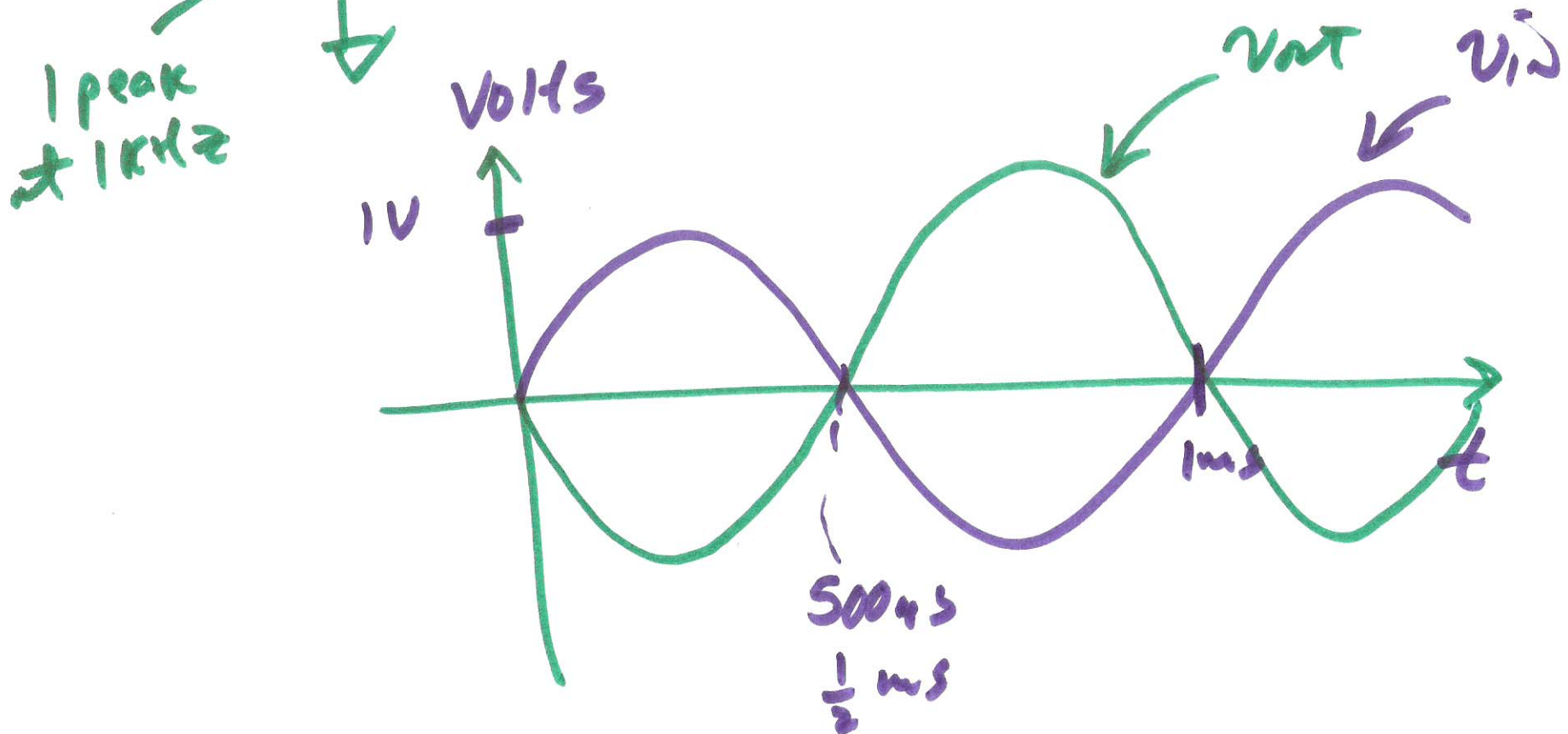
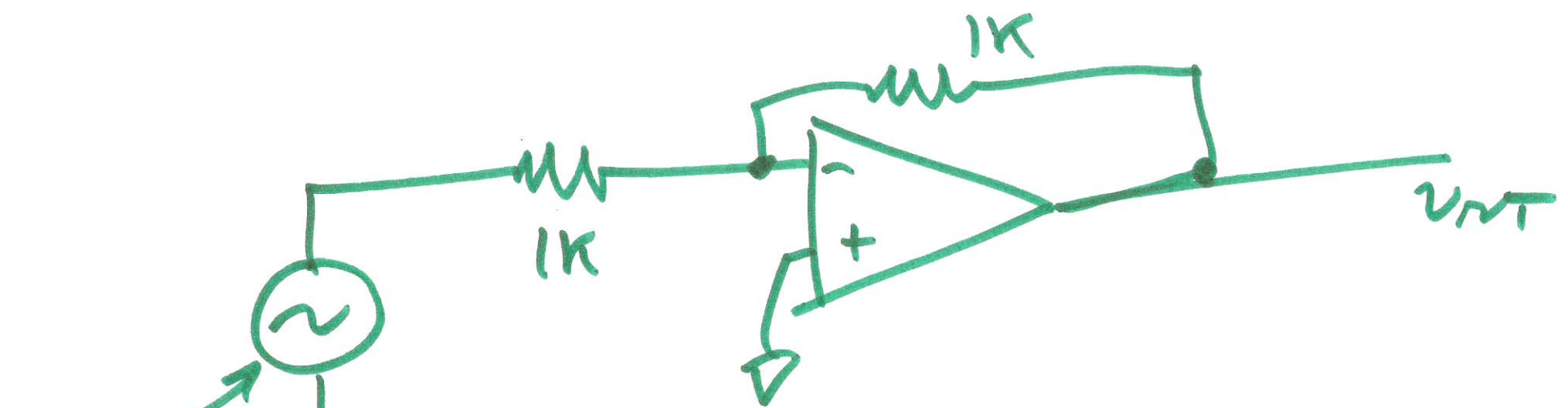
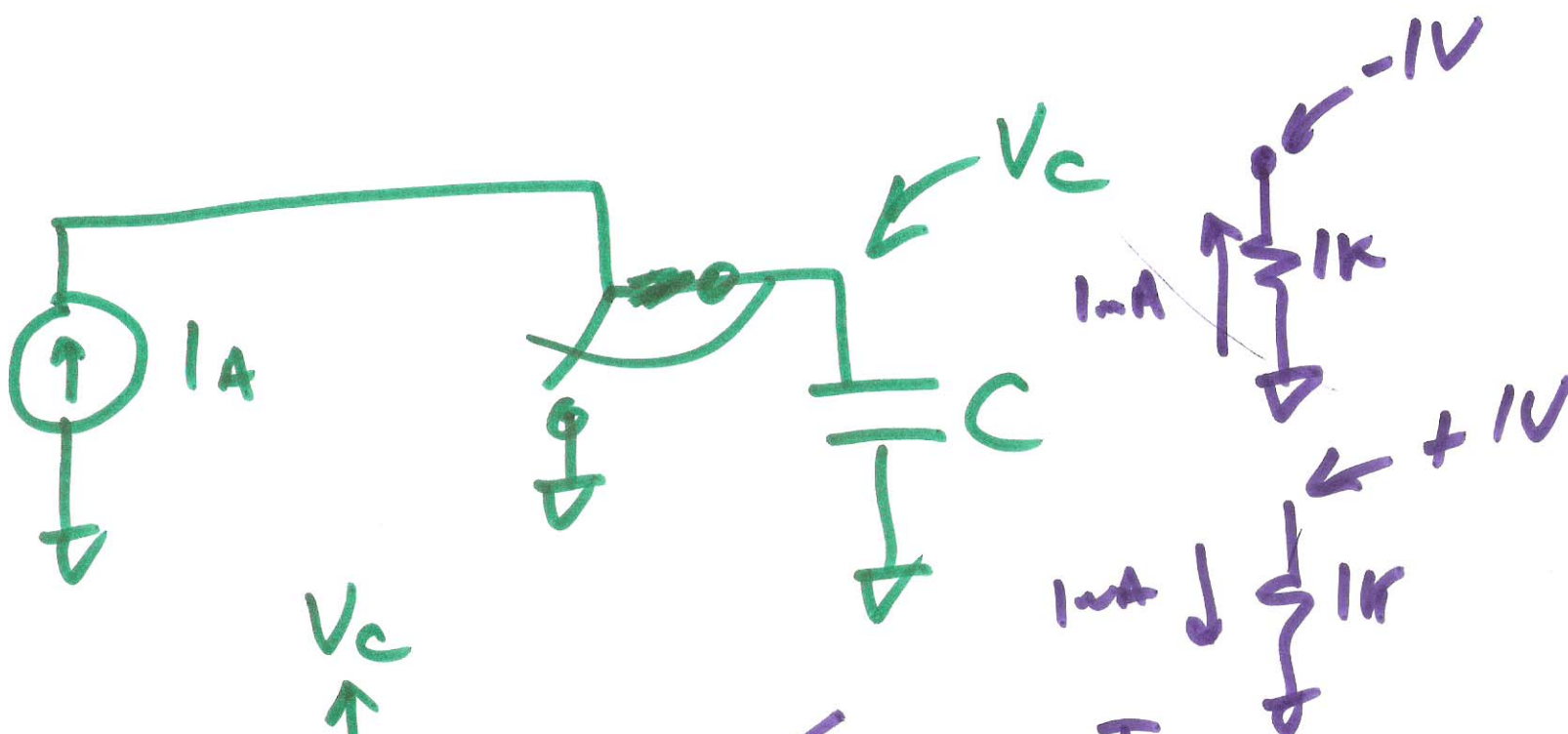


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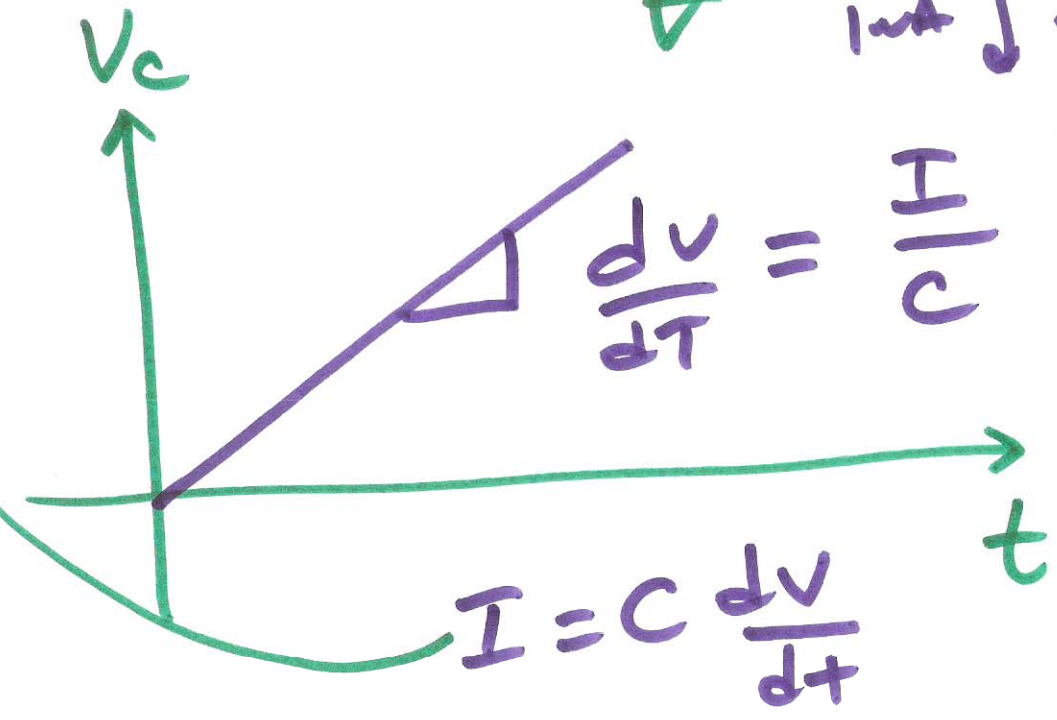




2)



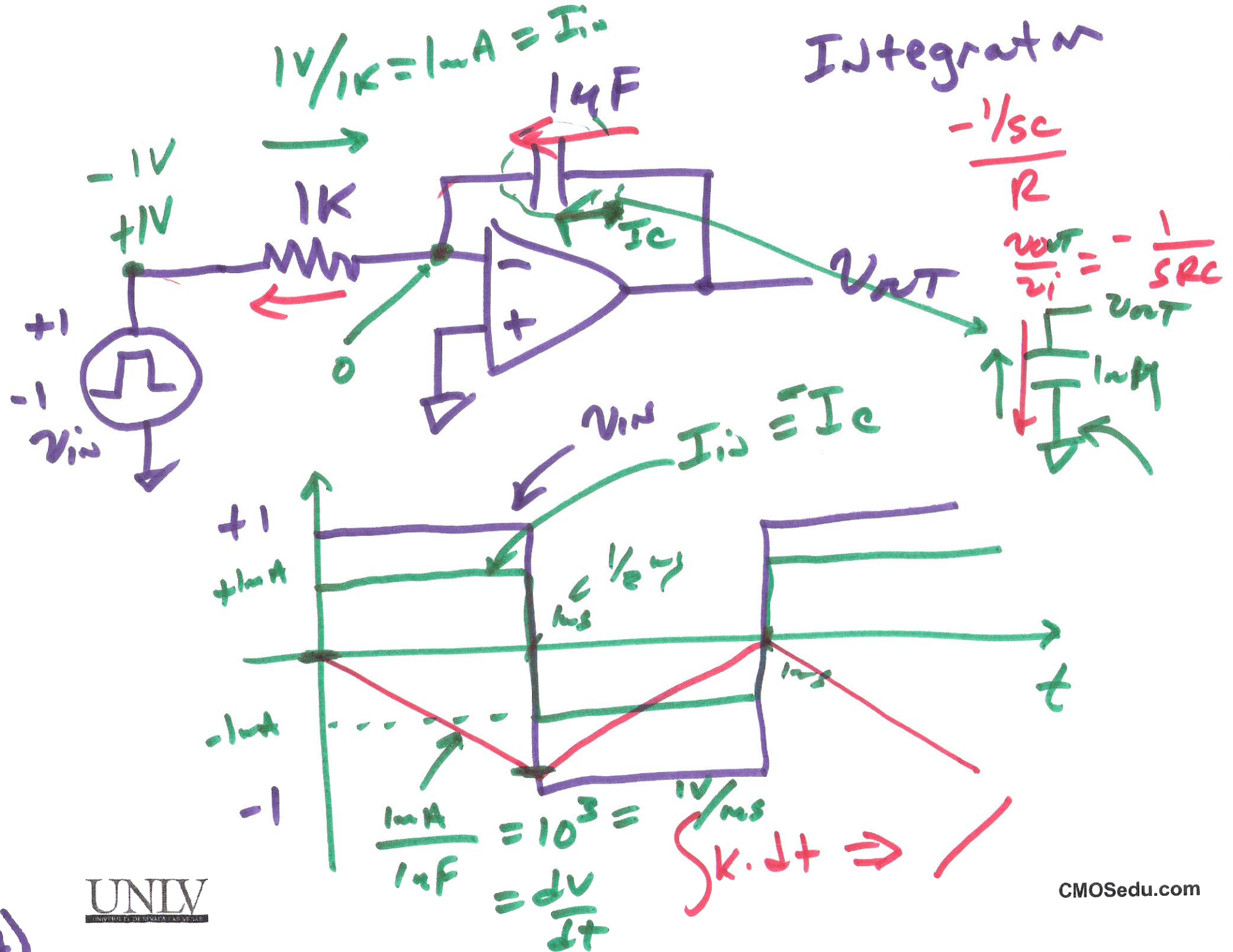
$$V = \frac{1}{C} \int I \cdot dt$$



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

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

3)



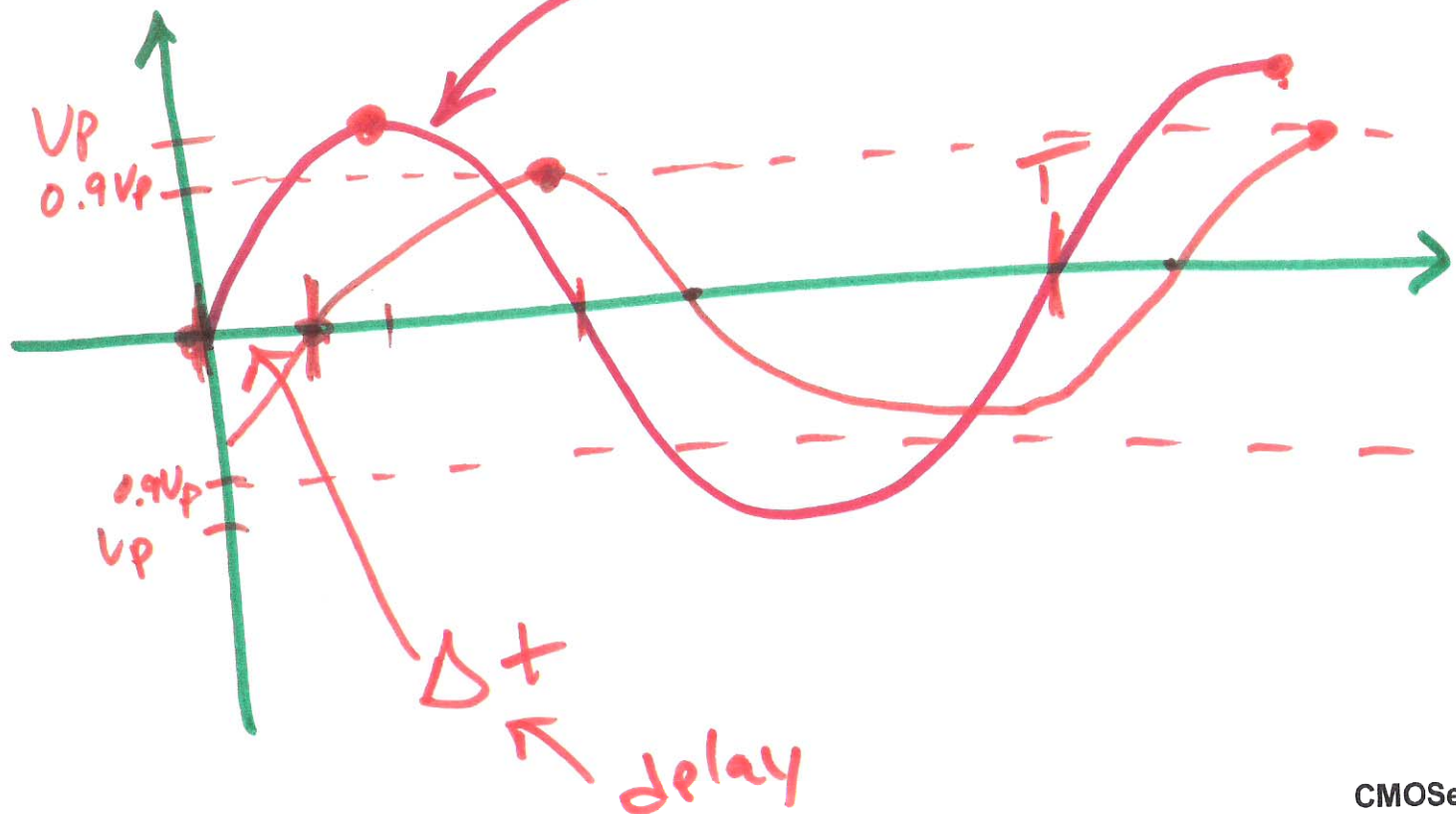
Magnitude and phase

$$\left| \frac{v_o}{v_i} \right| = 0.9$$

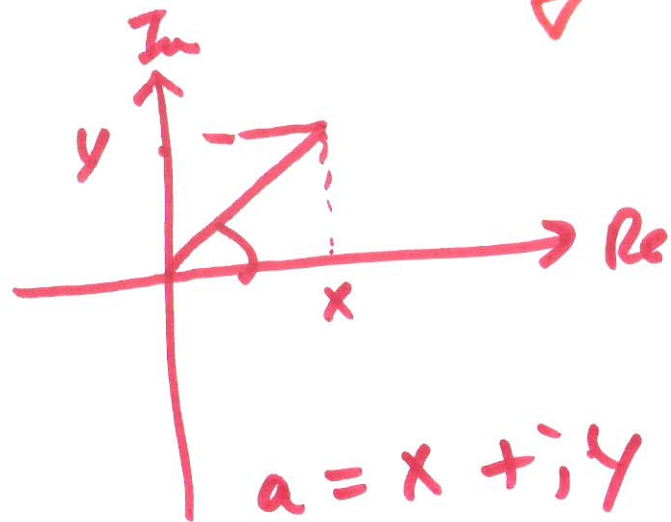
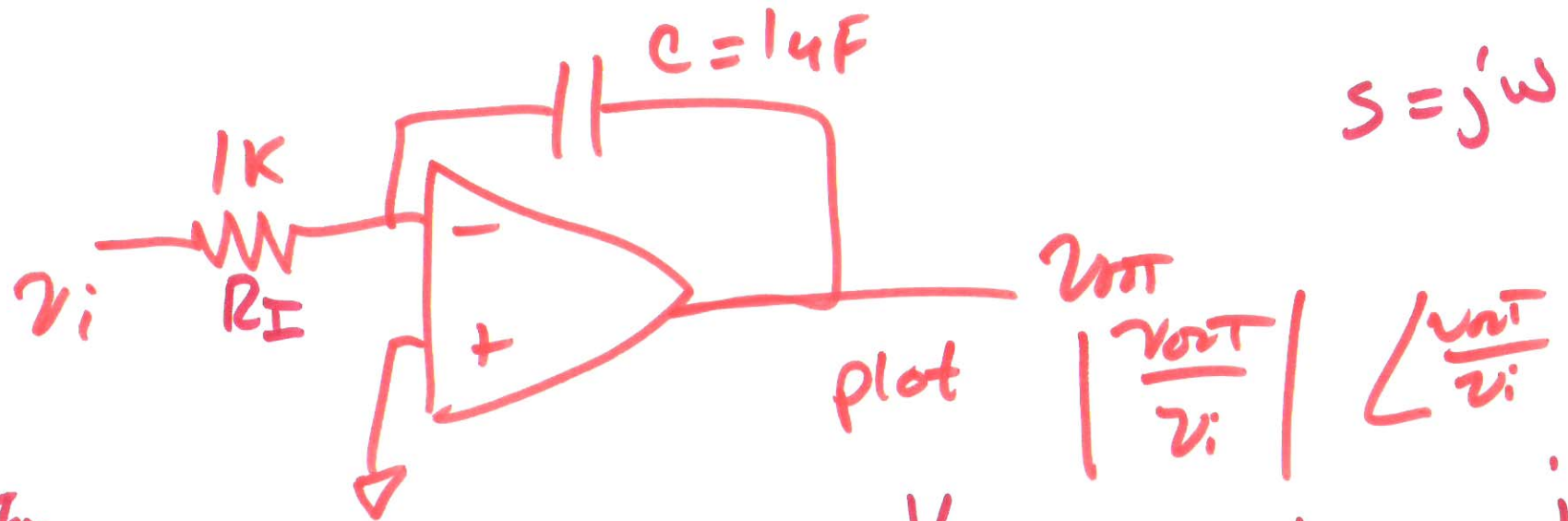
$$\frac{\Delta t}{T} \cdot 360 = \theta$$

$$\angle \frac{v_o}{v_i} = -60^\circ$$

v_{in} output occurs after input



5)



$$a = x + jy$$

$$|a| = \sqrt{x^2 + y^2}$$

$$\theta = \tan^{-1} \frac{y}{x}$$

$$\frac{v_{out}}{v_i} = \frac{-1/sC}{R} = \frac{-1}{j\omega \cdot 10^{-3}} \cdot \frac{1}{j}$$

$$= 0 + j \frac{1}{2\pi f \cdot 10^{-3}}$$

$$\left| \frac{v_{out}}{v_{in}} \right| = \frac{1}{2\pi f \cdot 10^{-3}}$$

$$\angle \frac{v_{out}}{v_i} = \tan^{-1} \frac{\frac{1}{2\pi f \cdot 10^{-3}}}{0} = 90^\circ$$