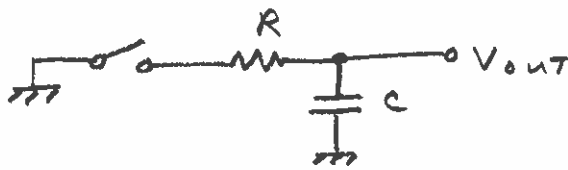
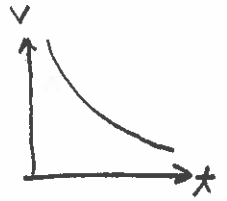


RC TIME-CONSTANT EQUATION:



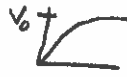
$$V_x = V_0 e^{-t/RC}$$



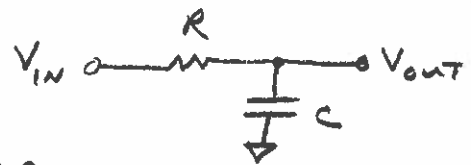
V_0 = initial voltage on Cap.

V_x = voltage after t seconds of discharge

$$\frac{V_0 - V_x}{V_0} = \frac{1}{e^{t/RC}} \quad (\text{where } V_x = \text{voltage after } t \text{ seconds of charging.})$$



$$f_0 = \frac{1}{2\pi RC}$$



f_0 = breakpoint of low pass filter

$$\frac{V_{out}}{V_{in}} = \frac{1/Cs}{1/Cs + R} = \frac{1}{1 + RCs}$$

$$\text{Absolute Gain} = \frac{1}{\sqrt{1 + (2\pi fRC)^2}} = 0.707 \text{ at } f_0$$