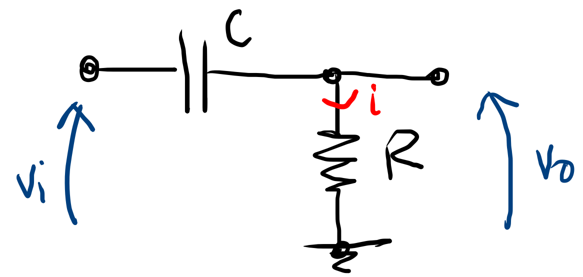
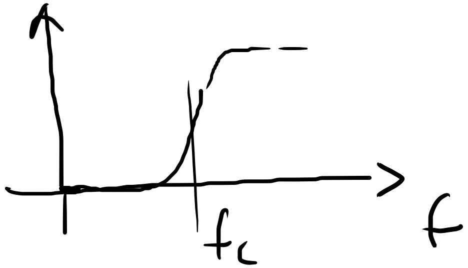
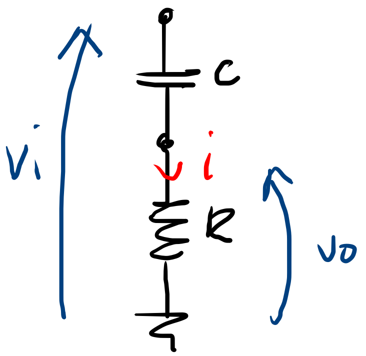
E 169 -







$$i = \frac{V_i}{X_C + R} \qquad V_o = R \cdot \frac{V_i}{X_C + R}$$

$$A_v = \frac{V_o}{V_i} = \frac{R}{X_C + R} \qquad X_C = \frac{1}{j\omega C}$$

$$= \frac{R}{\frac{1}{j\omega C} + R} = \frac{1}{\frac{1}{R}\left(\frac{1}{j\omega C} + R\right)} = \frac{1}{\frac{1}{j\omega \underline{RC}} + 1}$$

$$\omega_c = 2\pi f_c$$

$$\hookrightarrow \tau = RC \rightsquigarrow \frac{1}{\tau} = \omega_c = \frac{1}{RC}$$

$$\underbrace{\omega_c = 2\pi f_c = \frac{1}{RC}} \qquad f_c = \frac{1}{2\pi RC}$$

$$A_v = \frac{1}{1 + \frac{1}{j\frac{\omega}{\omega_c}}}$$

$\omega \to 0$

$$\frac{1}{0}$$

$$\frac{1}{0,1} = 10$$

$$\frac{1}{0,01} = 100$$

$$\frac{1}{0,001} = 1000$$

$$\frac{1}{0} = \infty$$

$$A_v = \frac{1}{1 + \frac{1}{0}} = \frac{1}{1+\infty} = \frac{1}{\infty} = 0$$

$$\frac{1}{2} = 0,5$$

$$\frac{1}{4} = 0,25$$

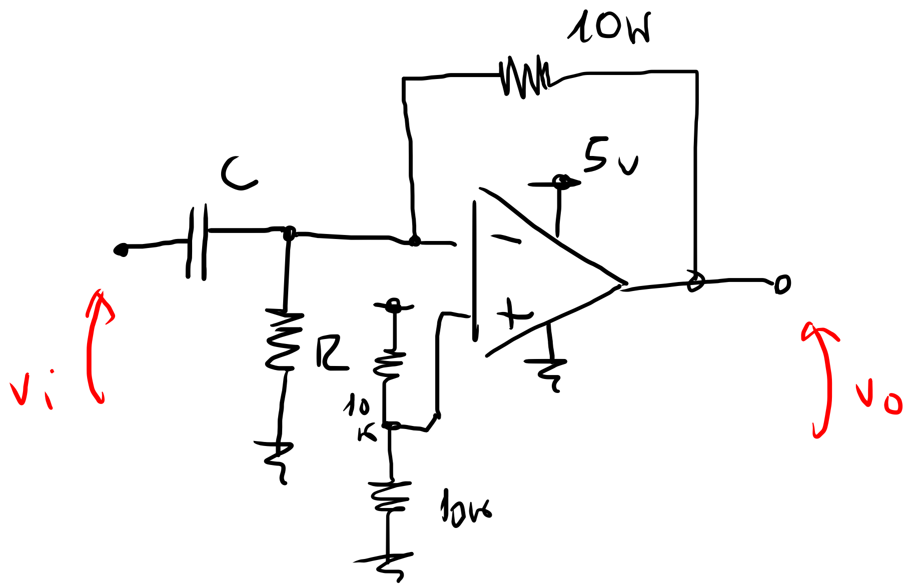
$$\frac{1}{10} = 0,1$$

$$\frac{1}{100} = 0,01$$

$$\frac{1}{\ }$$

$$\left| \frac{1}{\infty} \Rightarrow 0 \right|$$

$$A_v = \frac{1}{1 + \frac{1}{\infty}} = \frac{1}{1+0} = \frac{1}{1} = 1$$


10k
C
5v
R
10
k
10k
vi
vo