

ERT 24

Opp 3

$$i_c = i_R$$

$$i_c = C \frac{d}{dt} (x(t) - y) \quad y = 0$$

$$i_c = C \frac{d}{dt} x(t)$$

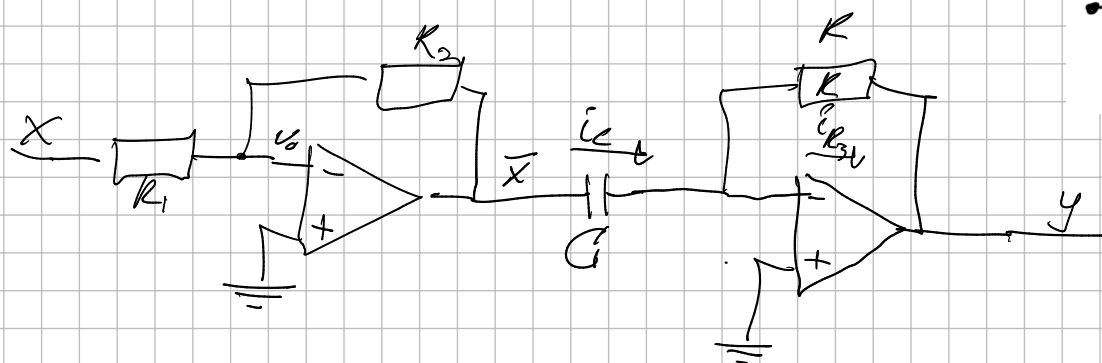
$$i_R = \frac{(y - x)}{R} = -\frac{y}{R}$$

$$i_c = i_R$$

$$C \frac{d}{dt} x = -\frac{y}{R}$$

$$y(t) = -RC \frac{d}{dt} x(t)$$

Opp 4



$$\frac{x - v_o}{R_1} = i_{R1} \quad v_o = 0$$

$$\frac{v_o - \bar{x}}{R_2} = i_{R2}$$

$$\frac{x - v_o}{R_1} = \frac{v_o - \bar{x}}{R_2}$$

$$\frac{x}{R_1} = -\frac{\bar{x}}{R_2}$$

$$\bar{x} = -\frac{R_2}{R_1} x$$

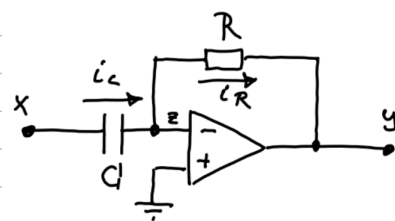
$$y = -R_3 C \frac{d}{dt} \bar{x}$$

$$= -R_3 C \frac{d}{dt} -\frac{R_2}{R_1} x$$

$$y(t) = \frac{R_2 R_3 C}{R_1} \frac{d}{dt} x(t)$$

$$\omega = \frac{R_2 R_3 C}{R_1} = 1$$

$$\underline{\underline{\tau_c = 1}}$$



$$C = 1 \mu F$$

$$R_1 = 1 M \Omega$$

$$R_2 = R_3 = 1 M \Omega$$

Opg 6)

$$v_1 - v_0 = 0$$

$$v_1 = 0$$

$$v_0 = 0$$

$$\underline{\underline{v = v_0 = 0}}$$

Opg 7)

$$\underline{\underline{i_n = \frac{x - v}{R} = \frac{x}{R}}}$$

$$i_c = C \frac{d}{dt} (3 - y)$$

$$\underline{\underline{i_c = -C \frac{d}{dt} y}}$$

Opg 8)

$$i_n = i_c$$

$$\frac{x}{R} = -C \frac{d}{dt} y$$

$$\frac{d}{dt} y = - \frac{1}{RC} x \quad | \cdot \int$$

$$y(t) = - \frac{1}{RC} \int x(t) dt$$

Opus (1)

