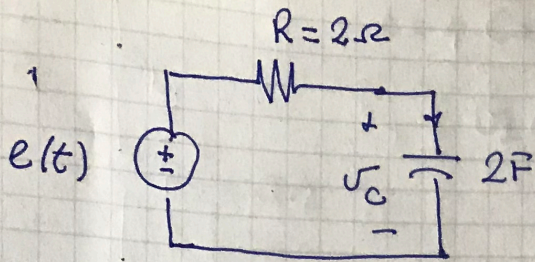


EXP



$$e(t) = \cos\left(\frac{1}{4}t + \frac{\pi}{2}\right)$$

$$C \cdot \frac{dV_c}{dt} = (e(t) - V_c) \frac{1}{R}$$

$$4 \cdot \frac{dV_c}{dt} = e(t) - V_c$$

$$\underline{V_c(t) = ?}$$

Using Phasor!

$$4 \cdot \frac{dV_c}{dt} = e(t) - V_c$$

$$e(t) = \cos\left(\frac{1}{4}t + \frac{\pi}{2}\right)$$



$$4 j\omega \cdot V_c = E - V_c$$

$$jV_c = E - V_c = e^{j\frac{\pi}{2}} - V_c$$

$$(j+1)V_c = e^{j\frac{\pi}{2}}$$

$$V_c = \frac{e^{j\frac{\pi}{2}}}{j+1}$$

$$= e^{j\pi/2} \cdot \frac{1}{\sqrt{2} e^{j\pi/4}}$$

$$= \frac{e^{j\frac{\pi}{2}} \cdot e^{-j\frac{\pi}{4}}}{\sqrt{2}}$$

$$V_c = \frac{1}{\sqrt{2}} \cdot e^{j\frac{\pi}{4}}$$

$$V_c(t) = \frac{1}{\sqrt{2}} \cdot \cos\left(\frac{1}{4}t + \frac{\pi}{4}\right)$$

$E = e^{j\frac{\pi}{2}}$
 $\omega = \frac{1}{4}$