

$$\varphi = \tan^{-1} \frac{V_C}{V_R} \Rightarrow \varphi = \tan^{-1} \frac{1,11}{1,19} \approx 43^\circ = \frac{\pi}{4}$$

$$\tan \varphi = \frac{1}{\omega R C} \Rightarrow C = \frac{1}{\omega R \tan \varphi} = \frac{1}{1 \times \pi \times 10^3 \times 22 \times 10^{-3}}$$

$$\approx 1,1 \times 10^{-4} \text{ فاراد}$$

$$= 1,1 \mu\text{فاراد}$$

می دانیم:  $\tan \varphi = \frac{V_C}{V_R}$   $\xrightarrow{x_C = \frac{V_C}{I}}$   $\tan \varphi = \frac{x_C}{R}$

$$\tan \varphi = \frac{1}{\omega R C} = \frac{1}{R \omega C}$$

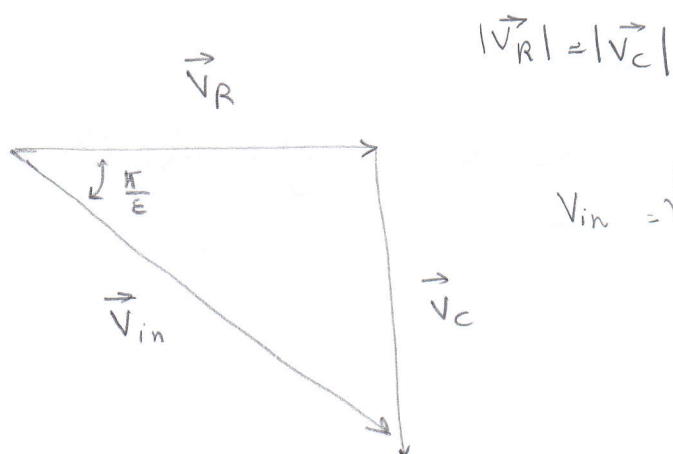
$$\Rightarrow \frac{x_C}{R} = \frac{1}{R \omega C} \Rightarrow x_C = \frac{1}{\omega C}$$

$$Z = \sqrt{R^2 + x_C^2} = \sqrt{R^2 + \frac{1}{C^2 \omega^2}} \approx 22 \Omega$$

$$R = 22 \Omega$$

$$\omega = 2\pi f = 2\pi \times 10^3 \text{ رادیان بر ثانیه}$$

$$C = 1,1 \times 10^{-4} \text{ فاراد}$$



$$V_{in} = \sqrt{V_R^2 + V_C^2}$$