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Dasu:

$$R = 3,2 \text{ k}\Omega$$

$$C = 7 \mu\text{K}$$

$$f = 50 \text{ Hz}$$

$$\Delta\varphi = ?$$

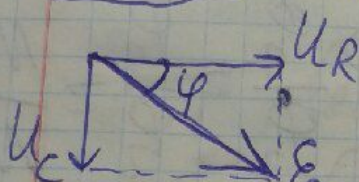
Beweis:  $\omega = \frac{2\pi}{T} = 2\pi f$



$$I = I_0 \cos \omega t$$

$$U_R = \dot{I}R = I_0 R \cos \omega t$$

$$u_c = \frac{q}{C} = \frac{\int I dt}{C} = \frac{I_0}{\omega C} \sin \omega t = \frac{I_0}{\omega C} \cos(\omega t - \frac{\pi}{2})$$



For gen. AP memory  
 $E_{cemu} \propto U_R \Rightarrow \log \propto$   
 $E_{cemu} = \frac{|U_c|}{|U_R|} = \frac{I_0}{\omega C I_0 R} =$

$$= 2 \cdot f_{CR} = \frac{7}{2 \cdot 374 \cdot 50 \cdot 10^{-6} \cdot 3,2 \cdot 20^3} = \frac{20^3}{374 \cdot 32} \approx$$

$\varphi = 45^\circ \Rightarrow \Delta\varphi = -45^\circ$

$\sqrt{2}$  annulung

Beim Energie:  $\langle P \rangle = I_{\text{Zapp}} \cdot U_{\text{Zapp}} \cdot \cos \varphi$

Дано:  $G = 2B$

$$U_{\text{zapp.}} = \frac{E_{00}}{\sqrt{2}} = \frac{2}{\sqrt{2}} = \sqrt{2} \text{ B}$$

$$z = 3 + i\sqrt{3}$$

$$I_{app.} = \frac{U_{app.}}{|Z|} = \frac{\sqrt{2}}{\sqrt{9+3}} = \frac{1}{\sqrt{6}} A$$



$$\operatorname{tg} \varphi_0 = \frac{\operatorname{Im} z}{\operatorname{Re} z} = \frac{\sqrt{3}}{3} \Rightarrow \varphi_0 = 30^\circ \Rightarrow \cos \varphi_0 = \frac{\sqrt{3}}{2}$$

$$\langle P \rangle = \frac{\sqrt{2}}{\sqrt{6}} \cdot \frac{\sqrt{3}}{2} = \frac{1}{2} = 0,5 \text{ Вт} \quad \text{Answer: } 0,5 \text{ Вт.}$$