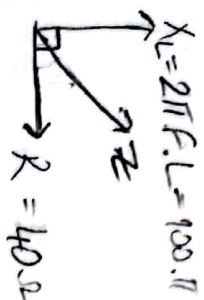


Hesaplama

$$X_L = 2\pi f \cdot L = 100 \cdot \pi \cdot 95,5 \cdot 10^{-3} = 30,002 \approx 30 \Omega$$

$$a) Z =$$



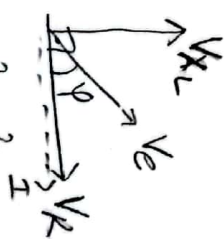
$$Z = \sqrt{30^2 + 40^2} = 50 \Omega$$

$$b) I = \frac{V_e}{Z} = \frac{220}{50} = 4,4 A$$

$$d) \tan \varphi = \frac{V_L}{V_R} = \frac{I \cdot X_L}{I \cdot R} = \frac{X_L}{R} \rightarrow \varphi = \tan^{-1} \left(\frac{X_L}{R} \right)$$

$$\varphi = \tan^{-1} \left(\frac{30}{40} \right) = 36,86^\circ$$

c)



$$V_e^2 = V_R^2 + V_L^2$$

$$V_L = \sqrt{V_e^2 - V_R^2}$$

$$= \sqrt{220^2 - (40 \cdot 4,4)^2}$$

$$= \sqrt{220^2 - 176^2}$$

$$= 132 V$$

a	b	c	d
50	44	132	36,86

Tablo

$$S^{0,2}$$

$$a) I_R = \frac{V_e}{R} = \frac{10}{5} = 2 A$$

$$b) I_L = \frac{V_e}{X_L} = \frac{10}{120\pi \cdot 10 \cdot 10^{-3}} = 2,65 A$$



$$I_L = 2,65 A$$

$$I_T = \sqrt{I_L^2 + I_R^2}$$

$$I_T = 3,32 A$$

$$d) \frac{1 \cdot 10}{Z} = \frac{V_e}{I_T}$$

$$Z = \frac{10}{3,32} = 3,01 \Omega$$

$$e) \tan \varphi = \frac{-I_L}{I_R} \rightarrow \varphi = \tan^{-1} \left(\frac{-I_L}{I_R} \right)$$

$$\varphi = \tan^{-1} \left(\frac{-2,65}{2} \right) = -52,85^\circ$$

a	b	c	d	e
2	2,65	3,32	3,01	52,85