

Dano:

$$R_1 = 15 \text{ Ohm}$$

$$R_2 = 60 \text{ Ohm}$$

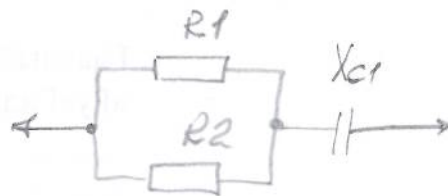
$$X_{C1} = 16 \text{ Ohm}$$

$$P = 48 \text{ Bm}$$

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

Hitung:  $Z, I, U,$

$\varphi^\circ, S, Q, C_1$



$$C_1 = \frac{1}{2 \cdot \pi \cdot f \cdot X_{C1}} = \frac{1}{2 \cdot 3,14 \cdot 50 \cdot 16} = 0,0002 \text{ F} = 2 \cdot 10^{-4} \text{ F}$$

$$Z = \frac{R_1 \cdot R_2}{R_1 + R_2} - jX_{C1} = \frac{15 \cdot 60}{15 + 60} - j16 = (12 - j16) \text{ Ohm} =$$

$$20 \cdot e^{-j53,130} \text{ Ohm}$$

$$P = I^2 \cdot R_{12}, I = \sqrt{\frac{P}{R_{12}}} = \sqrt{\frac{48}{12}} = 2 \text{ A}$$

$$U_R = I \cdot R_{12} = 2 \cdot 12 = 24 \text{ B}$$

$$I_{R1} = \frac{U_R}{R_1} = \frac{24}{15} = 1,6 \text{ A}; I_{R2} = \frac{U_R}{R_2} = \frac{24}{60} = 0,4 \text{ A}$$

$$U_{C1} = j \cdot I \cdot X_{C1} = -2 \cdot j16 = -j32 \text{ B} = 32 \cdot e^{-j90} \text{ B}$$

$$U = U_R + U_C = (24 - j32) \text{ B} = 40 \cdot e^{-j53,130} \text{ B}$$

$$S = Z \cdot I^2 = (12 - j16) \cdot 2^2 = (48 - j64) \text{ BA} = 80 \cdot e^{-j53,130} \text{ BA}$$

$$Q = -64 \text{ var}, \varphi^\circ = -53,130^\circ$$

$$1. \bar{I} = \bar{I}_{R1} + \bar{I}_{R2}$$

$$M_I = 0,5 \text{ A/cm}$$

$$2. \bar{U} = \bar{U}_R + \bar{U}_C$$

$$M_U = 6,66 \text{ B/cm}$$

