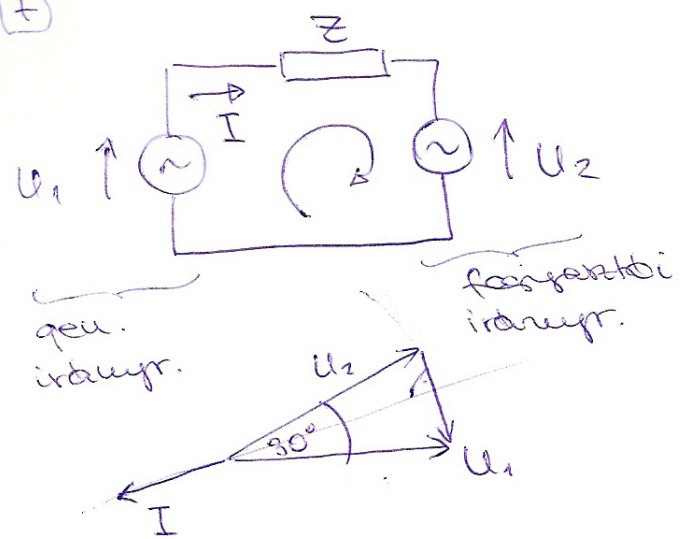


F



$$Z = R + jX = j5 \Omega$$

$$U_1 = 100V \angle 0^\circ$$

$$U_2 = 100V \angle 30^\circ$$

$$S_1 = P_1 + jQ_1 = U_1 I^* = (-1000 + j268) \text{ VA}$$

$$S_2 = P_2 + jQ_2 = U_2 I^* = (-1000 - j268) \text{ VA}$$

$$I = \frac{U_1 - U_2}{Z} = \frac{U_1 - U_2}{jX} =$$

$$= -10 - j2.68 = 10.35 e^{j195} \text{ A}$$

eredmeny: $P_1 = P_2 < \phi$

$$P_0 = |I|^2 R$$

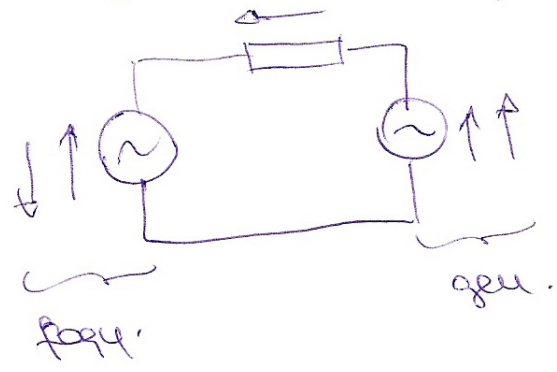
$$Q_0 = |I|^2 X$$

• wattos teljesitmeny

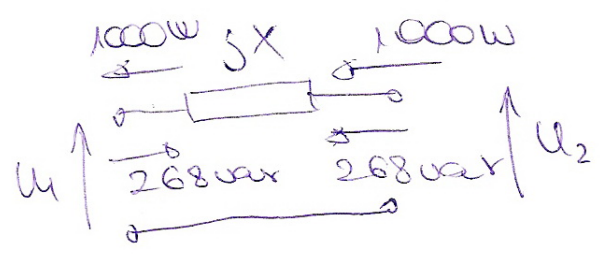
eljele megfordul

ha az aram iradnya

megfordul



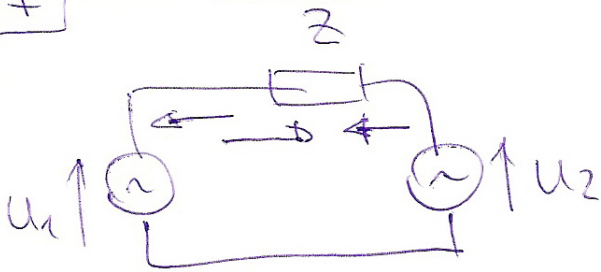
$$|Q_1| = |Q_2|$$



$$Q_1 - Q_2 = 536 \text{ var} =$$

$$= |I|^2 X$$

7



$$Z = R + jX = j5 \Omega$$

$$u_1 = 110V \angle 0^\circ$$

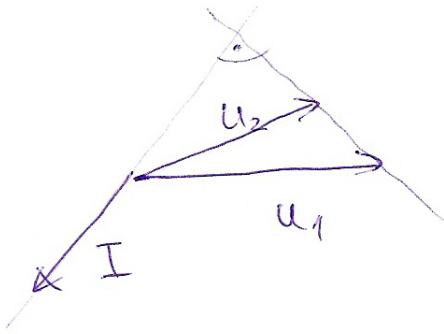
$$u_2 = 100V \angle 30^\circ$$

$$S_1 = P_1 + jQ_1 = u_1 I^* = (-1100 + j514) \text{ VA}$$

$$S_2 = P_2 + jQ_2 = u_2 I^* = (-1100 - j96) \text{ VA}$$

$$I = \frac{u_1 - u_2}{Z} = \frac{u_1 - u_2}{jX} =$$

$$= (-10 - j4,68) \text{ A} = 11,04 \angle -155^\circ \text{ A}$$



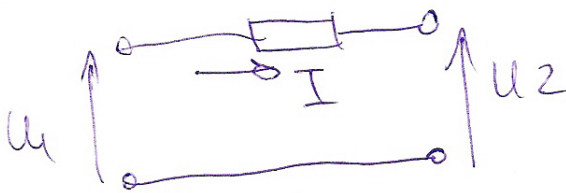
$P_{\text{ten}} = P_{\text{loss}}$ } otomatis busbar terj.

$|Q_1| = |Q_2|$ } ωf } minimum get bell stabilitasi

$$Q_1 - Q_2 = |I|^2 X = 610 \text{ var}$$

$$P_1 - P_2 = |I|^2 R = \phi$$

8



$$Z = R + jX = j5 \Omega$$

$$u_1 = 1000V \angle 0^\circ$$

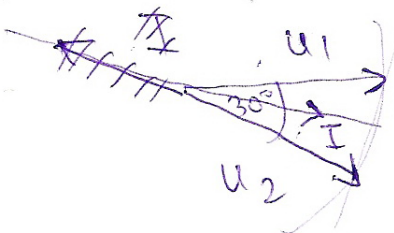
$$u_2 = 100V \angle -30^\circ$$

$$S_1 = P_1 + jQ_1 = u_1 I^* = (1000 + j268) \text{ VA}$$

$$S_2 = P_2 + jQ_2 = u_2 I^* = (1000 - j268) \text{ VA}$$

$$I = \frac{u_1 - u_2}{Z} = \frac{u_1 - u_2}{jX} = (10 - j2,68) \text{ A} = 10,35 \angle -15^\circ \text{ A}$$

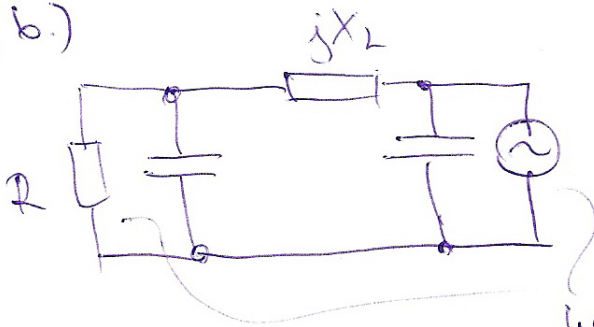
$$Q_1 - Q_2 = 536 \text{ var}$$



siet: generátor → innen jön a hatásos
 közik: motor teljesítmény

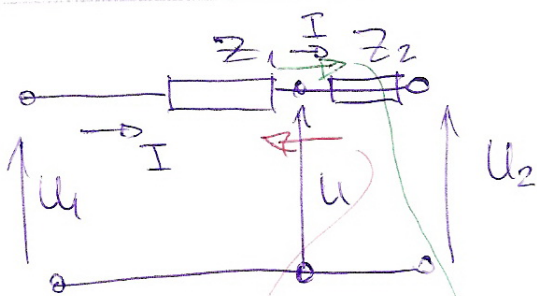
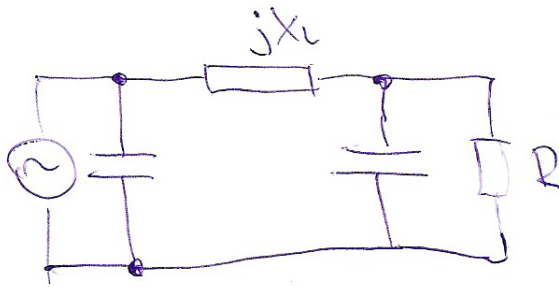
- mekkő teljesítményt a feszültség
 abszolútértéke befolyásolja
 ha u_1 -et továbbnövelünk akkor
 Q_2 ϕ -ra csökken majd
 megfordul

a.), b.)



hatásos telj-t
 termeli & fogyasztja

c.)

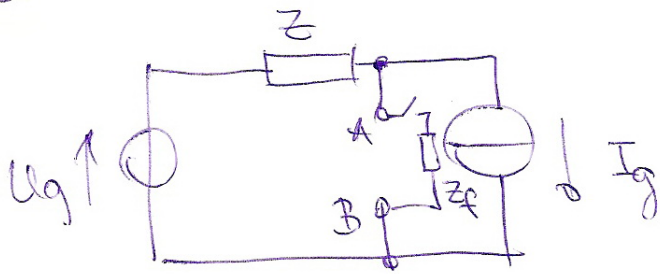


$$S = UI^* = P + jQ$$

$$P > 0$$

$$P < 0$$

⊕



$$U_q = 10 \text{ V } \angle 5^\circ$$

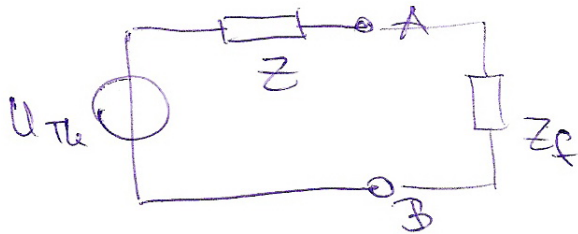
$$I_q = 1 \text{ A } \angle -85^\circ$$

$$Z = jX = j15 \Omega$$

$$Z_f = R_f + jX_f = 10 \Omega$$

$$I_f = ?$$

$$U_f = ?$$



$$U_{Th} = U_q + I_q Z = 5,43 \text{ V } \angle -23,6^\circ$$

$$I_f = \frac{U_{Th}}{Z + Z_f} = \frac{0,231 \text{ A } \angle -103^\circ}{\cancel{0,78 \text{ A } \angle -79,6^\circ}}$$

$$|U_f| = |I_f Z_f| = 2,3 \text{ V}$$