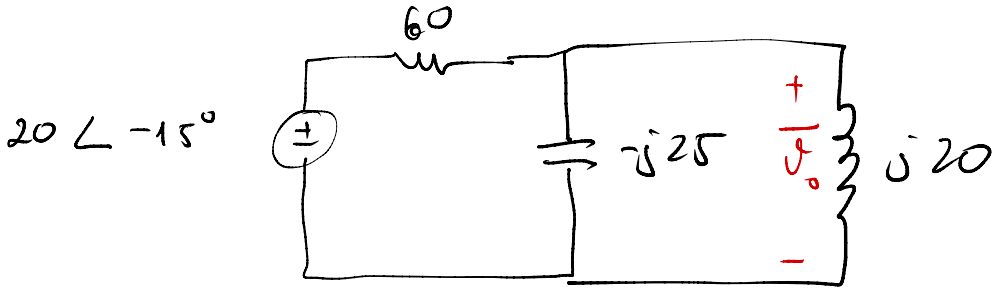


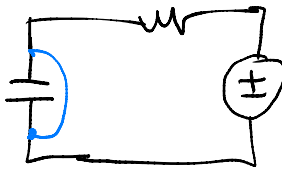
$$Z = \frac{1}{j\omega} = \frac{j}{j\omega} = -j\omega$$



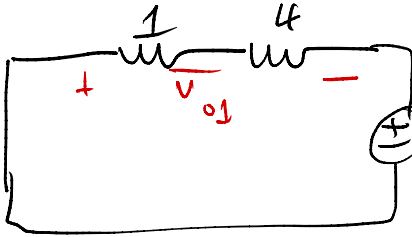
$$Z_{eq} = \frac{j20 + -j25}{j\omega + (-j25)} = 100 \angle 90^\circ$$

$$V_o = 20 \angle -15^\circ \times \left(\frac{\omega \angle 90^\circ}{60 + \omega \angle 90^\circ} \right)$$

$$= 17.15 \angle 15.36^\circ$$



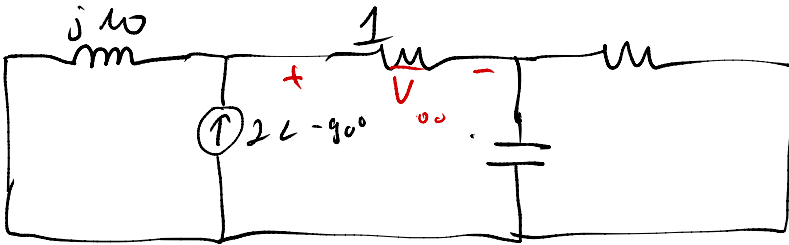
5^V : AC \rightarrow Remove capacitor!
 $= \frac{1}{j\omega C} \rightarrow 0$ PC $\rightarrow \omega = 0 \Rightarrow \frac{1}{0} = \infty$



$$V_{o1} = -5 \times \frac{1}{1+4}$$

$$= -1 \text{ (V)}$$

$$2 \sin 5t = 2 \angle -90^\circ$$



$$V_{ab} = V_A - V_b$$

$$= 120 \angle 75^\circ \left(\frac{8}{8-j6} \right) - 120 \angle 75^\circ \left(\frac{j12}{4+j12} \right)$$

$$= 37.95 \angle 220.31^\circ$$

$$-I_o(2-j4) + 0.5I_o(4+j3) + V_{th} = 0$$

$$\Rightarrow V_{th} = -j55$$

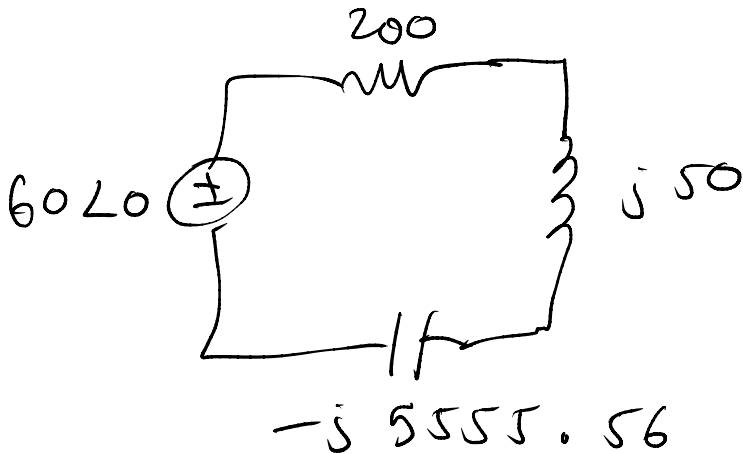
$$I_s = 6 = 0.5I_o + I_o \Rightarrow I_o = 4$$

$$Z_{th} = \frac{V_s}{I_s} = 4 - j0.6 \angle -9.46^\circ$$

$$V_s = (4 + j3 + 2 - j4)I_o$$

$$= 24 - j4$$

$$Z_N = 5 + (8 - j2 + 10 + j4) // 10 = 5$$



$$Z = 200 - j5555.56$$

$$F = \frac{60\angle 0}{200 - j5555.56} = 0.01\angle 87.92$$

