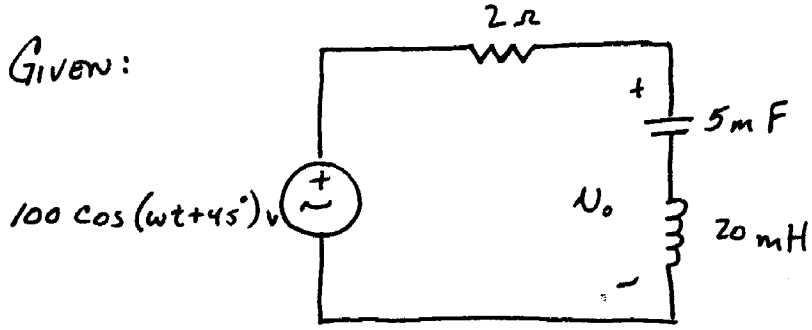
GIVEN:



FIND: ω SO THAT $v_o = 0$

SOLN: $v_o = 0$ IMPLIES $X = 0$

SO $|X_L| = |X_C|$

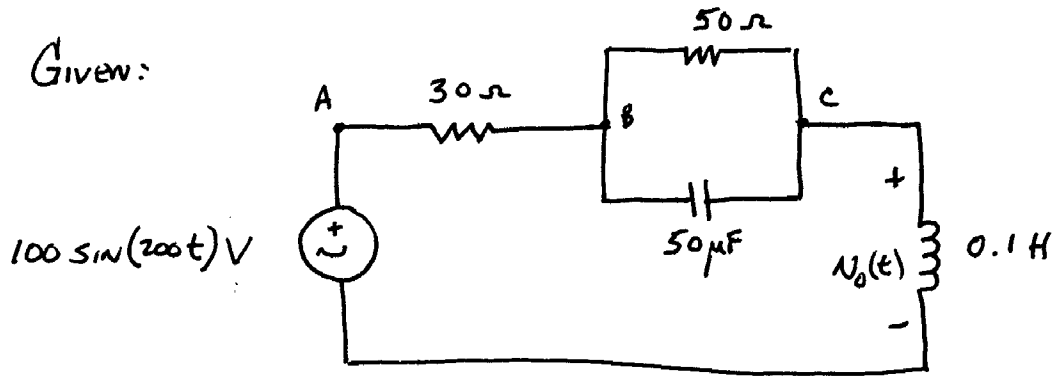
$$\omega L = \frac{1}{\omega C}$$

$$\omega = \sqrt{\frac{1}{LC}}$$

$$\omega = \underline{100 \text{ RAD s}^{-1}}$$

TOPS 35510 - 100 sheets 35520 - 200 sheets

Given:



FIND: $v_o(t)$

SOLN: TRANSFORM TO FREQ. DOMAIN & USE NODAL ANALYSIS

$$V_A = 100 \angle 0^\circ$$

① $$\frac{V_B - V_A}{30} + \frac{V_B - V_C}{50} + \frac{V_B - V_C}{-j/200(50\mu)} = 0$$

② $$\frac{V_C - V_B}{50} + \frac{V_C - V_B}{-j/200(50\mu)} + \frac{V_C}{j(200)(0.1)} = 0$$

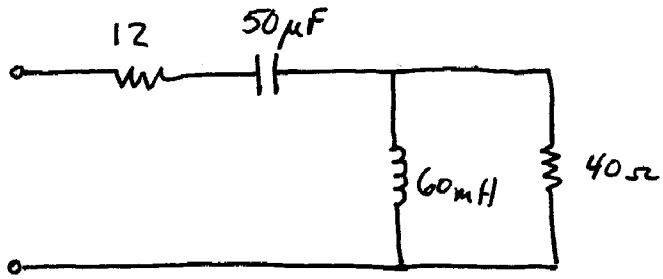
$$V_B = 57.14 \angle 0^\circ \text{ V}$$

$$V_C = 28.57 \angle 90^\circ \text{ V}$$

$$v_o(t) = \underline{28.57 \sin(200t + 90^\circ) \text{ V}}$$

TOPS 35510 - 100 sheets 35520 - 200 sheets

GIVEN:



FIND: Z @ $\omega = 377$ RAD s^{-1}

SOLN: $$Z = 12 + \frac{-j}{377(50\mu)} + \left(j(377)(60m) \,//\, 40 \right)$$

$$Z = \underline{21.69 - j\,35.91} \ \Omega$$

TOPS 35510 - 100 sheets 35520 - 200 sheets