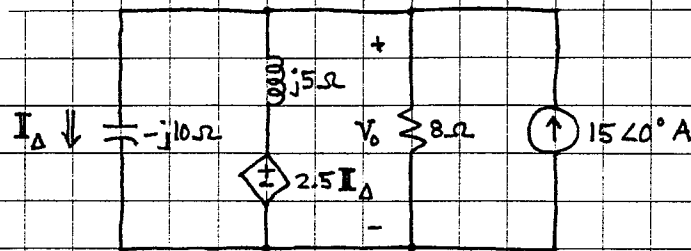


ex:



Use Node-Voltage to find phasor V_0 . Give V_0 in polar and rectangular forms.

sol'n: Dependency eq'n:
$$I_{\Delta} = \frac{V_0}{-j10\Omega}$$

Node eq'n:
$$\left(I_{\Delta} = \frac{V_0}{-j10\Omega} \right) + V_0 - \left(2.5 I_{\Delta} = 2.5 \frac{V_0}{-j10\Omega} \right) + \frac{V_0}{8\Omega} - 15\angle 0^\circ A = 0A$$

multiply both sides by $-j400\Omega$:

$$V_0 \cdot 40 + V_0(-80) + V_0(+j8) \cdot 2.5 - V_0 \cdot j50 = -j6000V$$

or
$$V_0(-40-j30) = -j6000V$$

or
$$V_0 = \frac{+j6000V}{40+j30} = j \frac{600}{4+j3} \frac{4-j3}{4-j3} = \frac{j(2400-j1800)}{25} V$$

or
$$V_0 = 72+j96 V$$