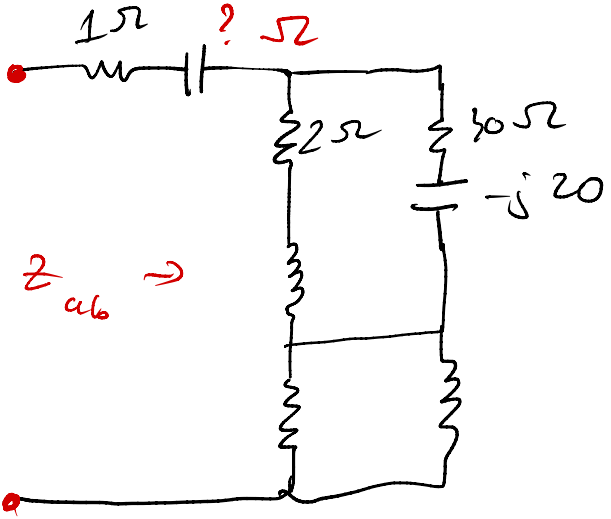
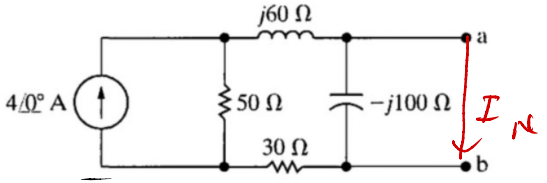

1Ω
? Ω
2Ω
30Ω
-j 20
Z_{ab} →



$$\bar{I}_N = 4\angle 0^\circ \left(\frac{50}{50 + j60 + 30} \right)$$

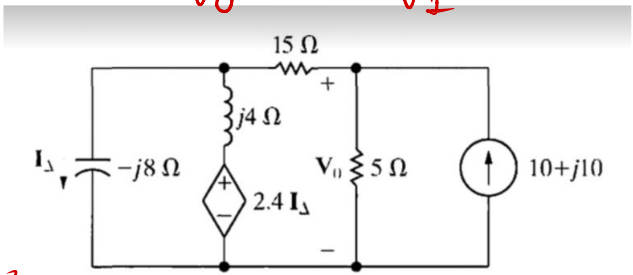
$$= 2\angle -36.87^\circ$$

$$Z_N = -j100 \,\|\, (j60 + 30 + 50)$$

$$= 100 - j50 = 100\angle -26.56$$

2) None of them above

V_0 V_1



$I_\Delta = \frac{V_0}{-j8} = \frac{jV_0}{8}$

Node 0: $\frac{V_0}{-j8} + \frac{V_0 - 2.4 I_\Delta}{j4} + \frac{V_0 - V_1}{15} = 0$

$\frac{jV_0}{8} + \frac{V_0 - 2.4\left(\frac{jV_0}{8}\right)}{j4} + \frac{V_0 - V_1}{15} = 0$

$\frac{jV_0}{8} + \frac{V_0}{j4} - \frac{j2.4V_0}{j32} + \frac{V_0 - V_1}{15} = 0$

$\frac{jV_0}{8} + \frac{V_0}{j4} - \frac{3}{40}V_0 + \frac{V_0 - V_1}{15} = 0$

$\Rightarrow V_0\left(\frac{j}{8} + \frac{1}{j4} - \frac{3}{40} + \frac{1}{15}\right) + V_1\left(\frac{-1}{15}\right) = 0$

$\Rightarrow V_0\left(\frac{-1}{120} - \frac{j}{8}\right) + V_1\left(\frac{-1}{15}\right) = 0$ E

A B

Node 1: $\frac{V_1 - V_0}{15} + \frac{V_1}{5} = -10 - j10$ F

$\Rightarrow V_0\left(\frac{-1}{15}\right) + V_1\left(\frac{4}{15}\right) = -10 - j10$

C D

$D = \frac{-1}{150} - \frac{j}{40}$ $D_x = \frac{2}{3} + \frac{j2}{5}$

$D_y = \frac{7}{6} - \frac{j4}{5}$ $y = 31.73 + j41.3$

$x = \frac{D_x}{D} = -23 + j15.58$