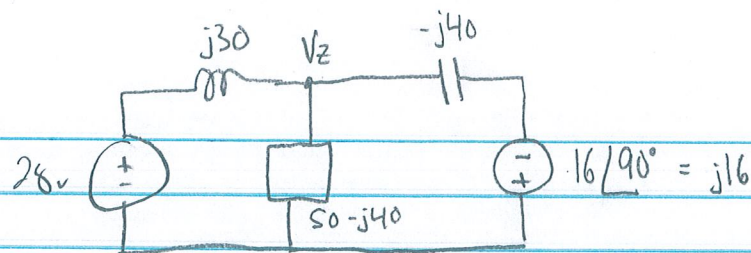


10.57



KCL @ V_z :

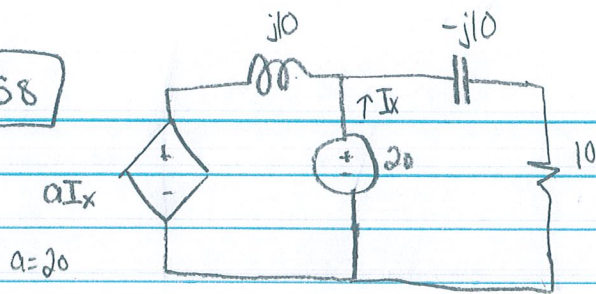
$$\frac{V_z - 28}{j30} + \frac{V_z}{50 - j40} + \frac{V_z + j16}{-j40} = 0$$

$$V_z \left(\frac{1}{j30} + \frac{1}{50 - j40} + \frac{1}{-j40} \right) = \frac{28}{j30} + \frac{j16}{j40} = 0.4 - j.933$$

\downarrow
 $.0122 + j.00142$

$$V_z = \frac{0.4 - j.933}{.0122 + j.00142} = \boxed{23.6 - j79.2 \text{ V}} = \boxed{82.6 / -73.4^\circ}$$

10.58



$$\text{KCL: } \frac{20 - aI_x}{j10} - I_x + \frac{20}{10 - j10} = 0$$

$$I_x \left(\frac{-20}{j10} - 1 \right) = \frac{-20}{j10} - \frac{20}{10 - j10}$$

$$I_x (-1 + j2) = -1 + j$$

$$I_x = \frac{-1 + j}{-1 + j2} = \boxed{0.6 + j0.2 \text{ Amps}}$$