

Text 2.40

Start with saying $I_A = 10/0^\circ$; then $V_{BC} = 208/0^\circ$; find V_{AB} and V_{AN} ...

Make sure you draw pictures(of circuits)

Ans: Part a $0 + j 12 \text{ ohm}$

2.46 Partial answer: Part a 182.6 V Part b 198.1 V

2.50

In the three-phase, 60 Hz circuit below, the source is balanced, positive sequence 208 V. Z_{line} is the impedance per phase of the three phase transmission line between source and load. Each phase of the line has the same impedance $Z_{line} = 1 + j 2 \text{ ohm/phase}$. The neutral wire connects the neutral of the load to that of the source, and has an impedance of $Z_n = 1 + j 1 \text{ ohm/phase}$.

The load is not a balanced load. The impedances are $Z_a = Z_b = 25 + j 0 \text{ ohm}$ and $Z_c = 33 + j 0 \text{ Ohm}$.

Use KVL to solve for $V_{a'n}$, $V_{b'n}$, $V_{c'n}$, I_a , I_b , I_c , I_n and $V_{nn'}$ '

In this system is it safe to touch the 'neutral' n' ?

