

①

Line-to-neutral voltages:

$V_{AN}, V_{BN}, V_{CN}$

Line-to-line voltages:

$V_{AB}, V_{BC}, V_{CA}$

Line currents:

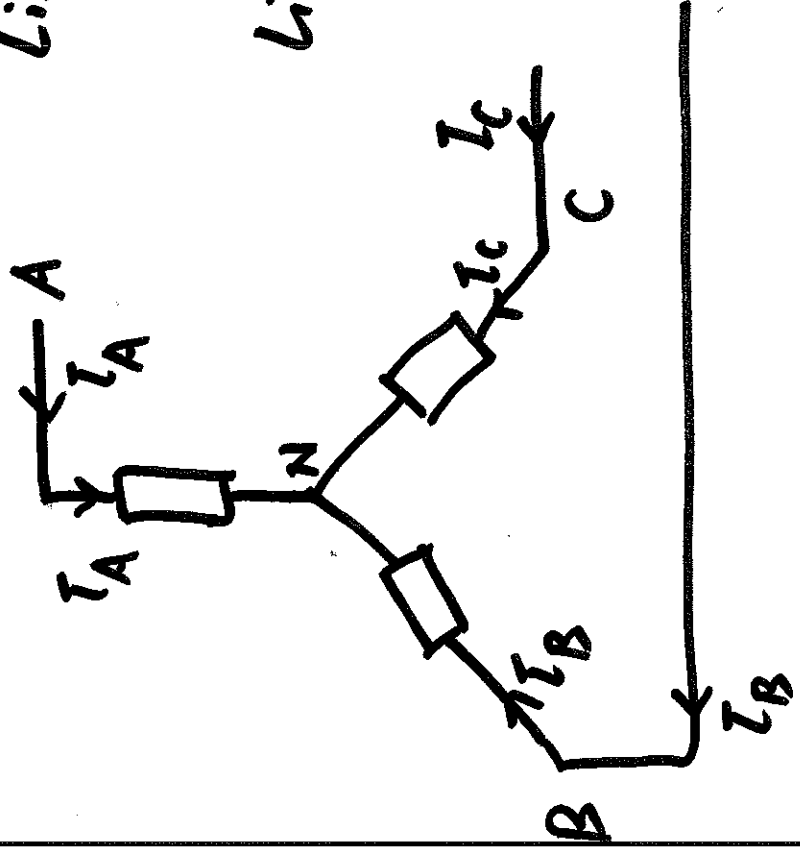
$I_A, I_B, I_C$

Phase currents:

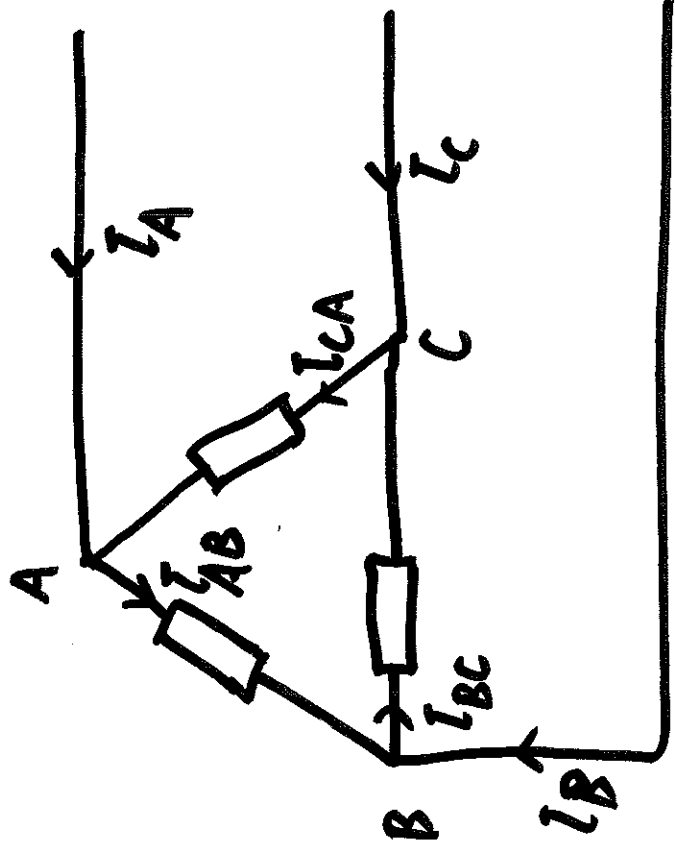
$I_A, I_B, I_C$

Phase voltages:

$V_{AN}, V_{BN}, V_{CN}$



②



Line-to-line voltages:

$V_{AB}, V_{BC}, V_{CA}$

Line currents:

$I_A, I_B, I_C$

Phase currents:

$I_{AB}, I_{BC}, I_{CA}$

Phase voltages:

$V_{AB}, V_{BC}, V_{CA}$

③

$$\text{If } v_{ab}(t) = 230\sqrt{2} \cos(120\pi t + 10^\circ) \text{ kV} \Rightarrow V_{ab} = 230 \angle 10^\circ \text{ kV}$$

$$V_{l(\text{RMS})} = 230 \text{ kV}$$

$$V_{an} = \frac{230}{\sqrt{3}} \angle 10^\circ - 30^\circ \text{ kV} \\ = \frac{230}{\sqrt{3}} \angle -20^\circ \text{ kV}$$

$$v_{an}(t) = \frac{230}{\sqrt{3}} \sqrt{2} \cos(120\pi t - 20^\circ) \text{ kV}$$