Mansi Uniyal
19EE10039

Proof eq^n 6.6

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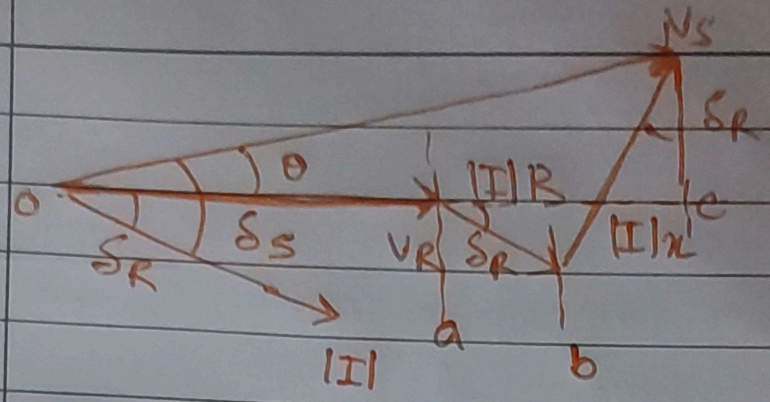

$oa + ab + bc = |Vs|\cos\theta = |Vs|\cos(\delta_s - \delta_R)$ — (1)

$oa = |V_R|$

$ab = |I|R\cos\delta_R$

$bc = |I|x.\sin\delta_R$

$\therefore |Vs|\cos(\delta_s - \delta_R) = |V_R| + |I|(R\cos\delta_R + x.\sin\delta_R)$

$\cos(\delta_s - \delta_R)$ approx 0

$\therefore |Vs| = |V_R| + |I|(R\cos\delta_R + x\sin\delta_R)$