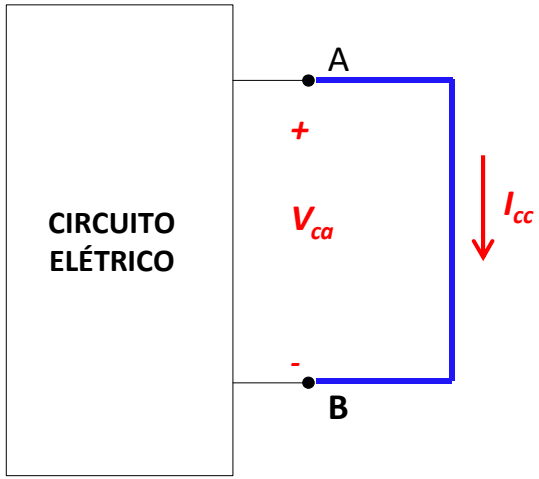
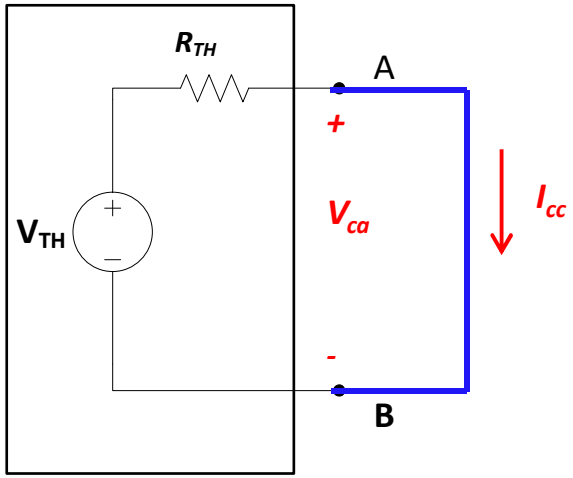
TEOREMAS DE THEVENIN E NORTON

CIRCUITO EQUIVALENTE DE THEVENIN





V_{TH} : TENSÃO DE THÈVENIN

$$V_{TH} = V_{ca}$$

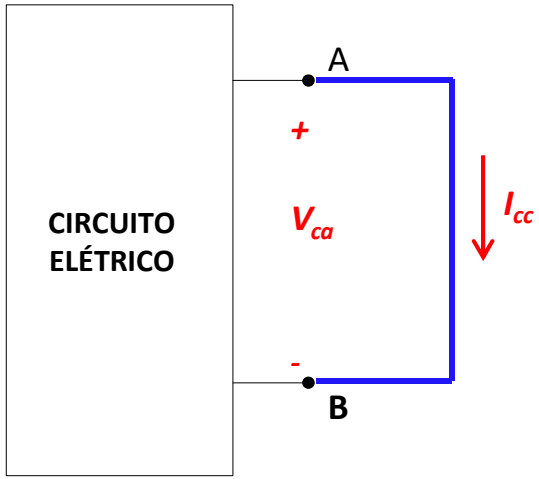
V_{ca} : TENSÃO DE CIRCUITO ABERTO

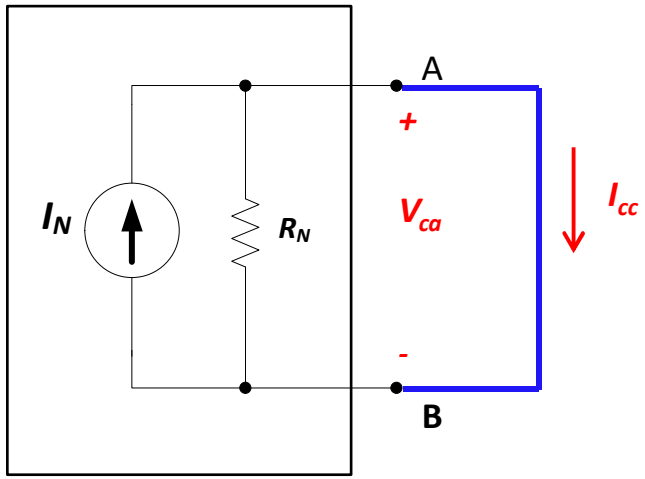
R_{TH} : RESISTÊNCIA EQUIVALENTE DE THEVENIN

$$R_{TH} = \frac{V_{ca}}{I_{cc}}$$

I_{cc} : CORRENTE DE CURTO-CIRCUITO

CIRCUITO EQUIVALENTE DE NORTON





I_N : CORRENTE DE NORTON

$$I_N = I_{cc}$$

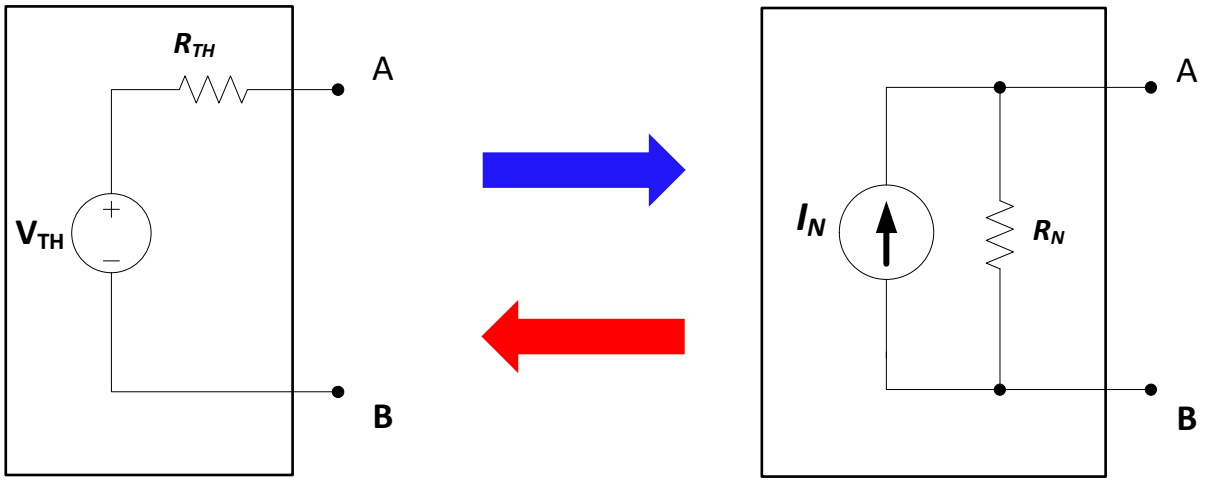
I_{cc} : CORRENTE DE CURTO-CIRCUITO

R_N : RESISTÊNCIA EQUIVALENTE DE NORTON

$$R_N = \frac{V_{ca}}{I_{cc}}$$

V_{ca} : TENSÃO DE CIRCUITO ABERTO

EQUIVALÊNCIA ENTRE THEVENIN E NORTON



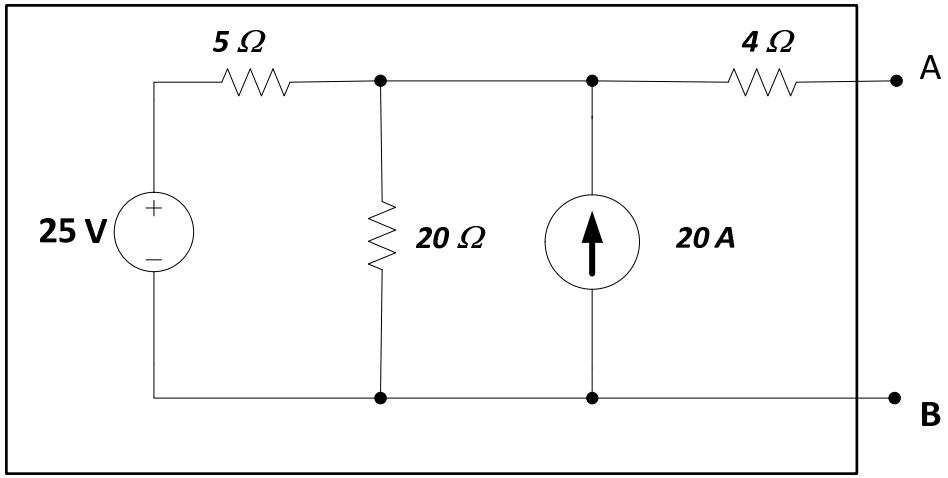
$$V_{TH} = R_N . I_N$$

$$R_{TH} = R_N$$

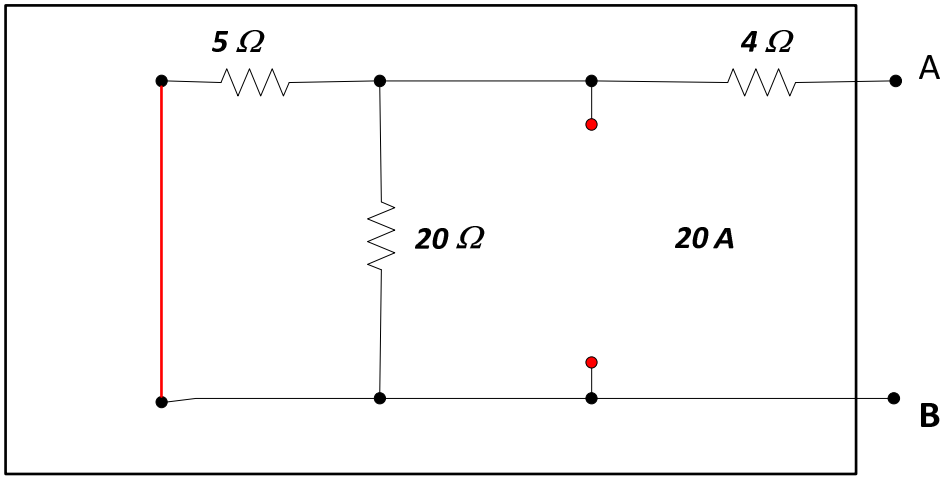
$$I_N = \frac{V_{TH}}{R_{TH}}$$

$$R_N = R_{TH}$$

OBTENÇÃO DE R_{TH} OU R_N (CIRCUITO SÓ COM FONTES INDEPENDENTES)



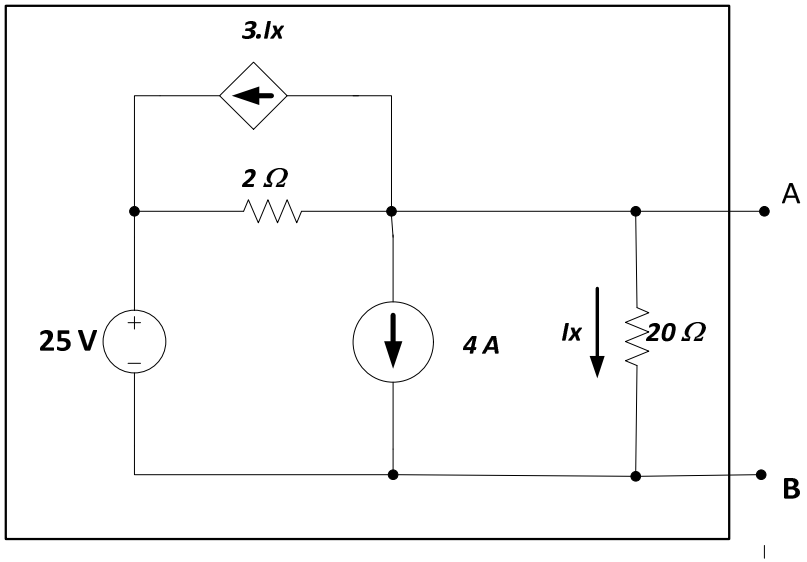
ANULA-SE AS FONTES E DETERMINA-SE A RESISTÊNCIA EQUIVALENTE VISTA DOS TERMINAIS DE INTERESSE.



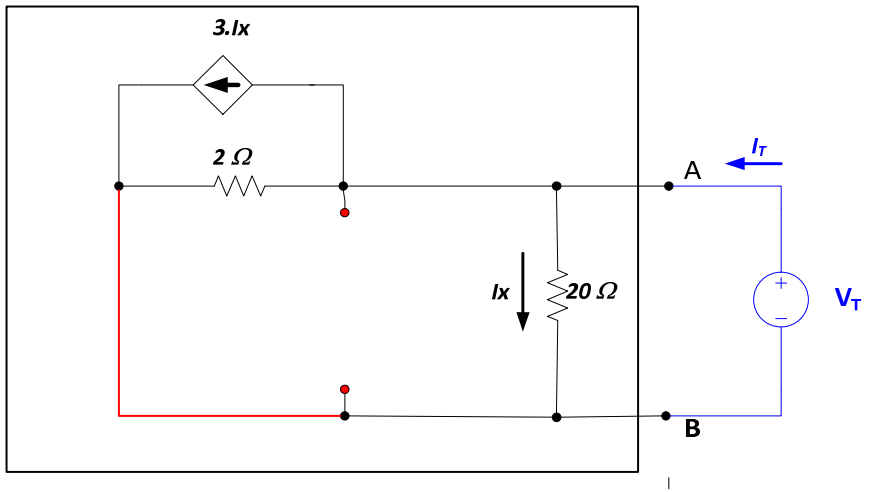
$$R_{TH} = R_N = 4\Omega + (5\Omega \,//\, 20\Omega)$$

$$R_{TH} = R_N = 8\Omega$$

OBTENÇÃO DE R_{TH} OU R_N (CIRCUITO COM FONTES DEPENDENTES)



- **ANULA-SE AS FONTES INDEPENDENTES**
- **APLICA-SE UMA TENSÃO NO TERMINAL DE INTERESSE**
- **DETERMINA-SE A RELAÇÃO V/I NESTE TERMINAL.**



$$I_x = \frac{V_T}{20}$$

$$I_T = 3I_x + I_x + \frac{V_T}{2} = \left(\frac{4}{20} + \frac{1}{2}\right).V_T$$

$$R_{TH} = R_N = \frac{V_T}{I_T} = \frac{20}{14}\Omega = 1{,}43\Omega$$