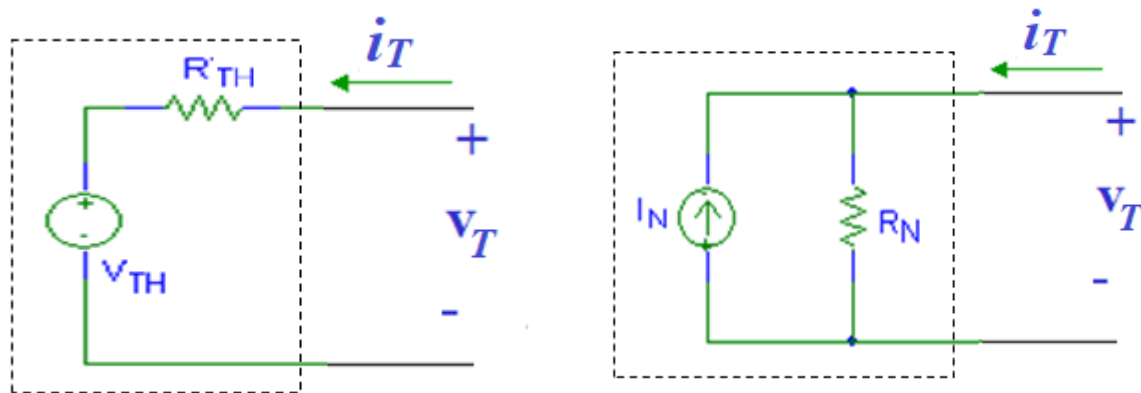
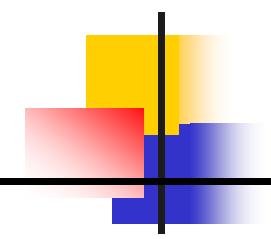
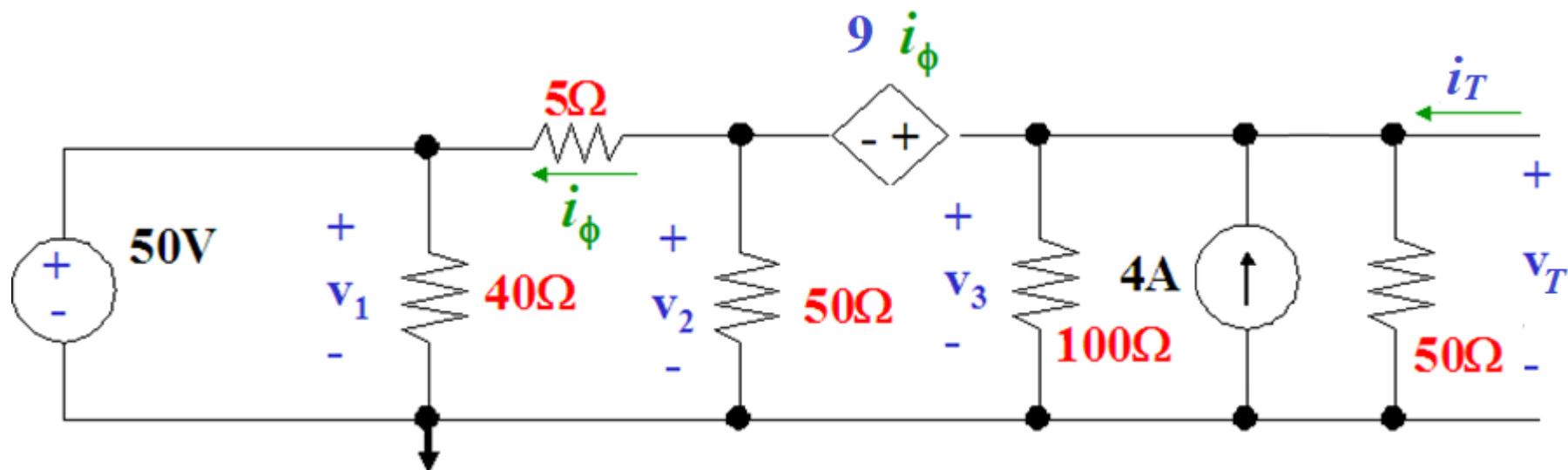


محاسبه همزمان مقاومت معادل و ولتاژ تونن یا جریان نورتن

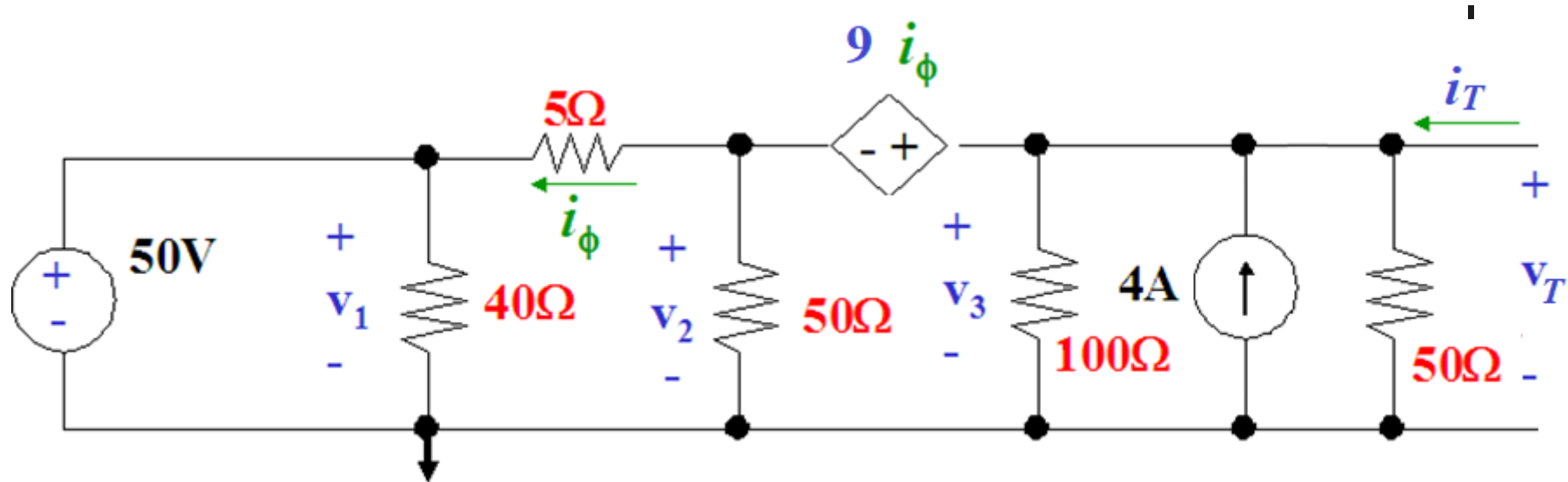


$$V_T = R_{TH} i_T + V_{TH}$$

$$i_T = V_T/R_N - I_N$$



محاسبه همزمان مقاومت معادل و ولتاژ تونن یا جریان نورتن



$$V_1 = 50$$

$$V_3 = V_T$$

$$(V_2 - 50)/5 + V_2/50 + V_T/100 - 4 + V_T/50 - i_T = 0 \quad \text{گره مرکب}$$

$$i_\phi = (V_2 - 50)/5 \quad \text{متغیر وابسته}$$

$$V_T = V_2 + 9(V_2 - 50)/5 = 2/8V_2 - 90 \rightarrow V_2 = 90/2/8 + 1/2/8V_T -$$

$$1 + 0.02V_T + 0.9 + 0.002V_T + 0.01V_T - 4 + 0.02V_T = i_T$$

$$0.052V_T - 5 = i_T$$

$$V_T = 19.23i_T + 96.15$$