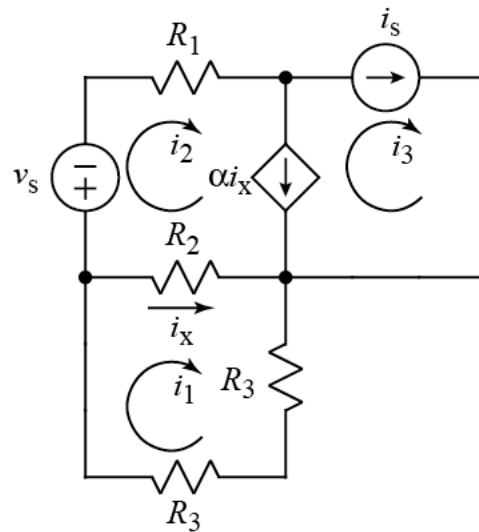


Ex:



For the circuit shown, write three independent equations for the three mesh currents, i_1 , i_2 , and i_3 . The quantity i_x must not appear in the equations.

SOL'N:

$$\begin{aligned} \textcircled{1} \quad i_3 &= i_s \\ \alpha i_x &= i_2 - i_3 \\ i_x &= (i_1 - i_2) \\ \textcircled{2} \quad \therefore \alpha (i_1 - i_2) &= (i_2 - i_3) \\ \text{V-loop: } \textcircled{3} \quad -i_1 R_3 - i_1 R_2 + i_2 R_2 - i_1 R_4 &= 0 \end{aligned}$$