



$$12 - 5(I_2 - I_3) - I_2 = 0$$

$$9 + 8(-I_1 - I_3) - I_1 = 0$$

$$12 - 10I_3 - 9 + I_1 - I_2 = 0$$

$$-5(I_2 - I_3) - 8(-I_1 - I_3) + 10I_3 = 0 \leftarrow \text{just a check - not needed}$$

$$12 = 0I_1 + 6I_2 - 5I_3$$

$$9 = 9I_1 + 0I_2 + 8I_3$$

$$3 = -I_1 + I_2 + 10I_3 \quad \checkmark$$

$$0 = 8I_1 - 5I_2 + 23I_3$$

current thru 5Ω is NOT $I_2 + I_3$
 8Ω is NOT $I_1 + I_2$

$$\begin{pmatrix} 0 & 6 & -5 & 12 \\ 9 & 0 & 8 & 9 \\ -1 & 1 & 10 & 3 \end{pmatrix} \xrightarrow{\text{ref}}$$

$$I_1 = \frac{179}{211} = .848$$

$$I_2 = \frac{452}{211} = 2.142$$

$$I_3 = \frac{36}{211} = .171$$