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*مقاطع فيديوهات لشرح المقرربشكل وافي
*ملخص للمادة للمراجعة النهائية
*محاضرات مباشرة على برنامج Zoom
*تواصل مستمر مع معلم المادة للمناقشة
للتواصل
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General DC Circuit Analysis 2

$4I_1$ $5(I_1 - I_2)$

$-25 + V_1 + V_3 - 10 = 0$

$5(I_1 - I_2)$ I_2

$10 - V_3 + V_2 - 7 = 0$

k.v.l ohm's law — loop mesh

1) Mesh Current Analysis

EXAMPLE 2-1: Write the mesh current equations for the circuit of Figure and solve for I_1, and I_2.

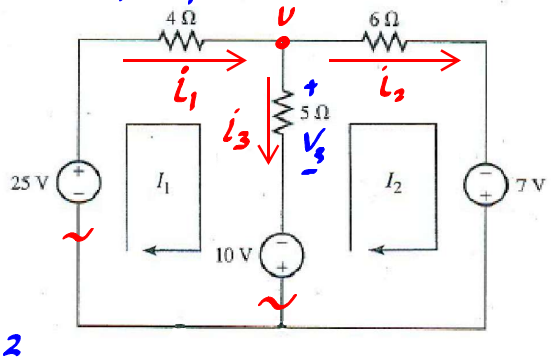
apply mesh current analysis at mesh 1

$-25 + 4I_1 + 5(I_1 - I_2) - 10 = 0$

$-25 + 4I_1 + 5I_1 - 5I_2 - 10 = 0$

$9I_1 - 5I_2 = 35 \rightarrow (1)$

+ V_1 − + V_2 −



apply mesh current analysis at mesh 2

$10 + 5(I_2 - I_1) + 6I_2 - 7 = 0$

$ax + by = c$

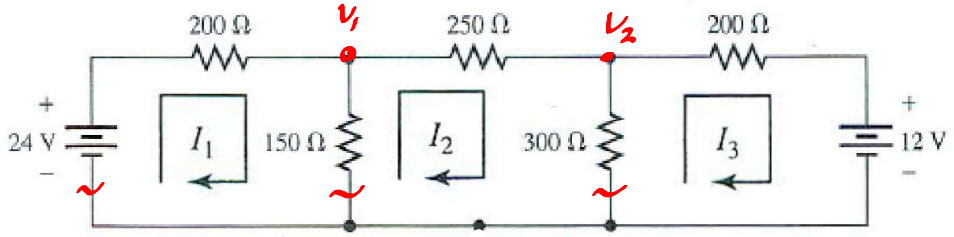
$10 + 5I_2 - 5I_1 + 6I_2 - 7 = 0$

$-5I_1 + 11I_2 = -3 \rightarrow (2)$

$I_1 = 5\ A$

$I_2 = 2\ A$

EXAMPLE 2-2: Write the mesh current equations for the circuit of Figure and solve for I_1, I_2, and I_3.



apply mesh current analysis at mesh 1

$-24 + 200 I_1 + 150(I_1 - I_2) = 0 \Rightarrow 350 I_1 - 150 I_2 + \quad = 24 \rightarrow (1)$

apply mesh current analysis at mesh 2

$150(I_2 - I_1) + 250 I_2 + 300(I_2 - I_3) = 0 \Rightarrow -150 I_1 + 700 I_2 - 300 I_3 = 0 \rightarrow (2)$

apply mesh current analysis at mesh 3

$300(I_3 - I_2) + 200 I_3 + 12 = 0 \Rightarrow \quad 0 I_1 \quad - 300 I_2 + 500 I_3 = -12 \rightarrow (3)$

$I_1 = 0.0714\ A = 71.4\ mA$

$I_2 = 6.274 \times 10^{-3}\ A = 6.27\ mA$

$I_3 = -0.0199\ A = -19.9\ mA$