



Class Performance 1

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Submitted By

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Course: Electrical Circuits (EEE141)

Section: 05

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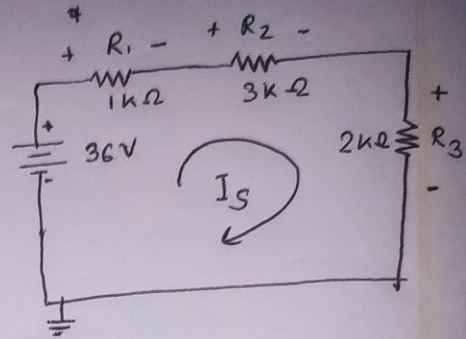
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Example: 5.7.

(a) Here, $R_T = R_1 + R_2 + R_3$.
 $= (1 + 3 + 2) \text{ k}\Omega$.
 $= 6 \text{ k}\Omega$.

(b) $I_S = \frac{E}{R_T} = \frac{36 \text{ V}}{6 \text{ k}\Omega} = 6 \text{ mA}$.



(c) $I_1 = I_2 = I_3 = I_S$. Here,
 $I_1 = I_2 = I_3 = I_S$.

So, $V_1 = I_1 R_1 = I_S R_1 = (6 \text{ mA})(1 \text{ k}\Omega) = 6 \text{ V}$.

$V_2 = I_2 R_2 = I_S R_2 = (6 \text{ mA})(3 \text{ k}\Omega) = 18 \text{ V}$.

$V_3 = I_3 R_3 = I_S R_3 = (6 \text{ mA})(2 \text{ k}\Omega) = 12 \text{ V}$.

(d) $P_E = E I_S = (36 \text{ V})(6 \text{ mA}) = 216 \text{ mW}$.

(e) $P_{R1} = V_1 I_1 = (6 \text{ V})(6 \text{ mA}) = 36 \text{ mW}$.

$P_2 = I_2^2 R_2 = (6 \text{ mA})^2 (3 \text{ k}\Omega) = 108 \text{ mW}$.

$P_3 = I_3^2 R_3 = (6 \text{ mA})^2 (2 \text{ k}\Omega) = 72 \text{ mW}$.

(f) $P_E = P_{R1} + P_{R2} + P_{R3}$

$\Rightarrow 216 \text{ mW} = 36 \text{ mW} + 108 \text{ mW} + 72 \text{ mW} = 216 \text{ mW} \text{ (checked)}$

