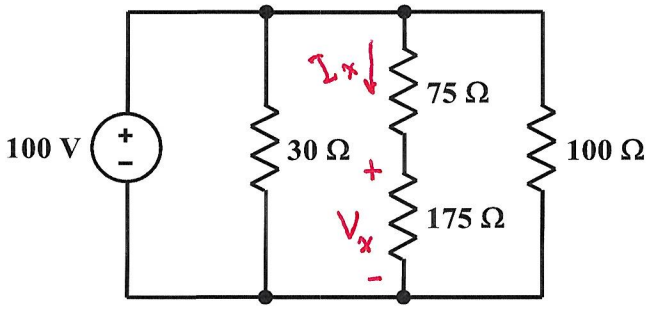
EE 2240

Homework Problem #015



How much power is the 75 Ω resistor absorbing?

$$V_x = \frac{75\Omega}{75\Omega + 175\Omega} \cdot 100V \qquad \text{(Voltage Divider)}$$

$$= 30\,V$$

$$P_x = \frac{V_x^2}{75\Omega} = \frac{(30)^2}{75} = 12\,W$$

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or $$I_x = \frac{100V}{75\Omega + 175\Omega} = 0.4\,A \qquad \text{(Ohm's Law)}$$

$$P_x = I_x^2 (75\Omega) = (0.4)^2 (75) = 12\,W$$

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or $$P_x = V_x I_x = (30)(0.4) = 12\,W$$