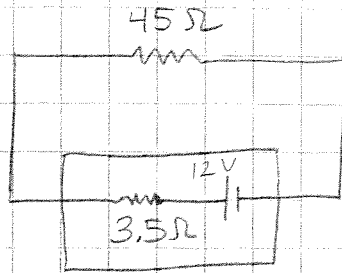


P # J

Ch 18- Worksheet

a)



$$\mathcal{E} = 12 \text{ V}$$

$$r = 3.5 \Omega \text{ (internal)}$$

$$R_1 = 45 \Omega$$

$$\begin{aligned} \text{b) } R_{eq} &= r + R_1 \\ &= 3.5 \Omega + 45 \Omega \\ &= 48.5 \Omega \end{aligned}$$

$$\begin{aligned} V_{eq} &= I_{eq} \cdot R_{eq} \\ 12 \text{ V} &= I_{eq} \cdot (48.5 \Omega) \end{aligned}$$

$$I_{eq} = .247 \text{ A}$$

$$\begin{aligned} \text{c) } V_1 &= I_1 \cdot R_1 \\ &= (.247 \text{ A})(45 \Omega) \end{aligned}$$

$$V_1 = 11.1 \text{ V}$$

$$\begin{aligned} \text{d) } I_{eq} &= .247 \text{ A} = I_1 \\ V_1 &= 11.1 \text{ V} \end{aligned}$$

$$\begin{aligned} P_1 &= I_1 \cdot V_1 \\ &= (.247 \text{ A})(11.1 \text{ V}) \end{aligned}$$

$$P_1 = 2.75 \text{ W}$$