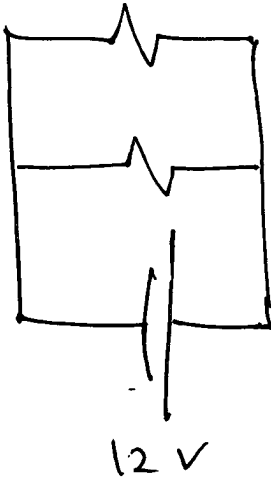
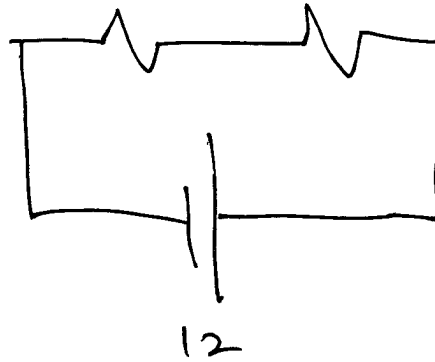


CIRCUIT I



CIRCUIT II



$$\frac{(12V)^2}{R} + \frac{(12V)^2}{R} \quad \text{VS.} \quad \frac{(6V)^2}{R} + \frac{(6V)^2}{R}$$

CIRCUIT II USES $\frac{1}{4}$ THE POWER
OF CIRCUIT I.

ELECTRIC POWER PROBLEM 1 (GG CH 18 P 28)

$$P = \frac{V^2}{R}$$

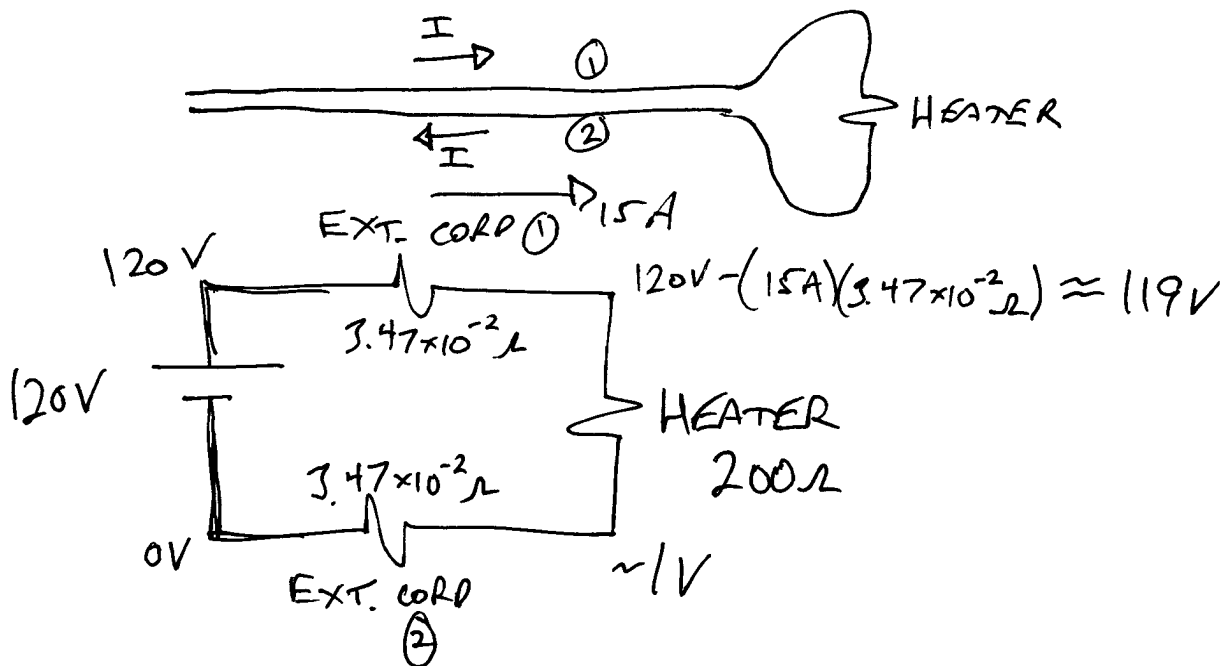
$$V = \sqrt{RP} = \sqrt{(2700 \Omega)(0.25 \text{ W})}$$

$$= 25.98 \text{ V}$$

PROBLEM 2 (GG CH 18 P 38)

$$R = \rho \frac{L}{A} = (1.68 \times 10^{-8} \Omega \cdot \text{m}) \frac{(2.7 \text{ m})}{A} = 3.47 \times 10^{-2} \Omega$$

$$A = \pi r^2 = \pi \left(\frac{1.29 \times 10^{-3} \text{ m}}{2} \right)^2$$



$$\begin{aligned} P &= I^2 R = (15A)^2 (3.47 \times 10^{-2} \Omega) \\ &\quad + (15A)^2 (3.47 \times 10^{-2} \Omega) \\ &= 15.62 \text{ W} \end{aligned}$$

DONT DO:

$$P = \frac{V^2}{R} \neq \frac{(120V)^2}{(3.47 \times 10^{-2} \Omega)}$$

VOLTAGE ACROSS EXT. CORD
(NOT 120V).