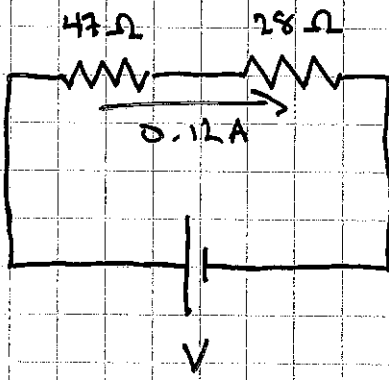


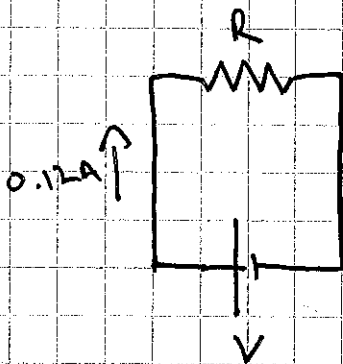
# Circuits ↗

①



Same current through both resistors b/c they are in series.

$$R = 47 + 28 = 75\ \Omega$$



$$V = IR$$

$$= (0.12)(75)$$

$$V = \boxed{9\text{ V}}$$

②

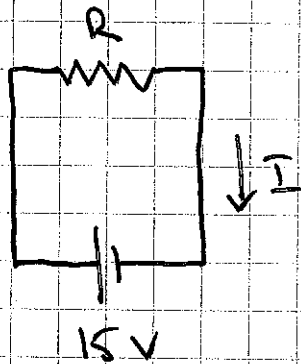
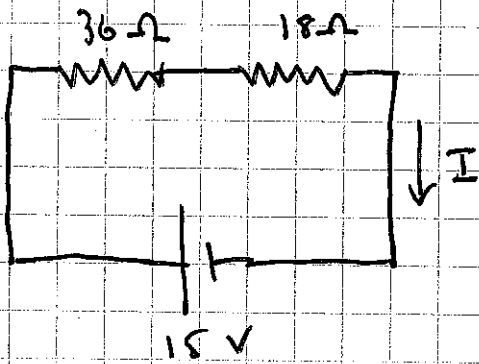
a)  $R = 25 + 45 + 75 = \boxed{145\ \Omega}$

b)  $V = IR$

$$= (0.51)(145)$$

$$V = \boxed{73.95\ \Omega}$$

3



$$R = 36 + 18 = 54 \Omega$$

$$I = \frac{V}{R} = \frac{15}{54} = 0.277 \text{ A}$$

$$36 \Omega$$

$$V = IR$$

$$= (0.277)(36)$$

$$V = \boxed{10 \text{ V}}$$

$$18 \Omega$$

$$V = IR$$

$$= (0.277)(18)$$

$$V = \boxed{5 \text{ V}}$$

$$\textcircled{4} \quad P = 5.0 \text{ W} \quad (2 \times 2.50)$$

$$R = 47 + 47 = 94 \Omega$$

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

$$V = \sqrt{P \cdot R}$$
$$= \sqrt{(5)(94)}$$

$$V = \boxed{21.7 \text{ V}}$$

$$\textcircled{5} \quad \text{a) } R = 9 + 5 + 1 = 15 \Omega$$

$$I = \frac{V}{R} = \frac{24}{15} = \boxed{1.6 \text{ A}}$$

$$\text{b) } \underline{9 \Omega}$$

$$V = IR$$

$$= (1.6)(9)$$

$$V = \boxed{14.4 \text{ V}}$$

$$\underline{5 \Omega}$$

$$V = IR$$

$$= (1.6)(5)$$

$$V = \boxed{8 \text{ V}}$$

$$\underline{1 \Omega}$$

$$V = IR$$

$$= (1.6)(1)$$

$$V = \boxed{1.6 \text{ V}}$$

$$\text{c) } \underline{9 \Omega}$$

$$P = IV$$

$$= (1.6)(14.4)$$

$$P = \boxed{23.04 \text{ W}}$$

$$\underline{5 \Omega}$$

$$P = IV$$

$$= (1.6)(8)$$

$$P = \boxed{12.8 \text{ W}}$$

$$\underline{1 \Omega}$$

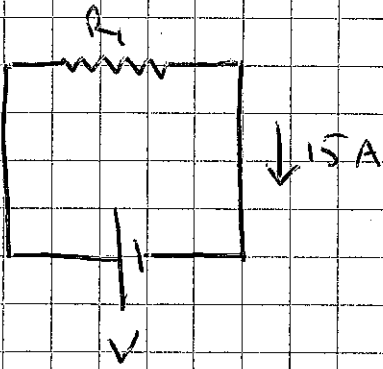
$$P = IV$$

$$= (1.6)(1.6)$$

$$P = \boxed{2.56 \text{ W}}$$

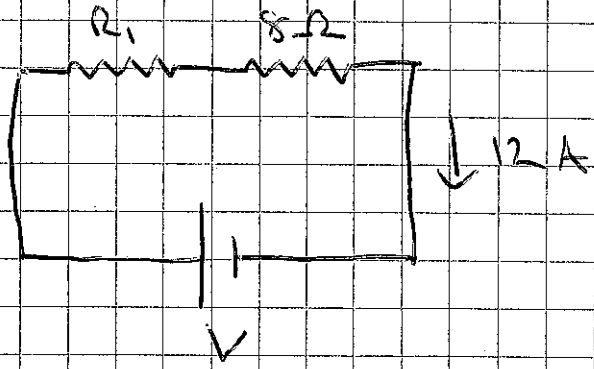
⑥

Original



$$V = 15R_1$$

New



$$V = 12(R_1 + 8)$$

$$15R_1 = 12(R_1 + 8)$$

$$15R_1 = 12R_1 + 96$$

$$3R_1 = 96$$

$$R_1 = \boxed{32 \Omega}$$