

Ch 10 Pnb 28

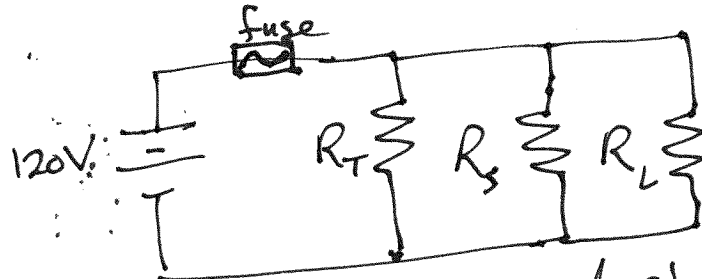
$$P_T = 1800 \text{ W}$$

$$I_{\text{fuse}} = 15 \text{ A}$$

$$P_S = 1400 \text{ W}$$

$$V = 120 \text{ V}$$

$$P_L = 75 \text{ W}$$



a) What current is drawn by each device?

Since they are in parallel, each device has 120V dropped across it. Therefore

$$P = I \cdot V \rightarrow I = \frac{P}{V}$$

$$\text{Toaster } I_T = \frac{1800 \text{ W}}{120 \text{ V}}$$

$$\text{Speaker } I_T = \boxed{15 \text{ A}}$$

$$I_S = \frac{1400 \text{ W}}{120 \text{ V}}$$

$$I_S = \boxed{11.7 \text{ A}}$$

$$\text{Lamp } I_L = \frac{75 \text{ W}}{120 \text{ V}}$$

$$I_L = \boxed{0.625 \text{ A}}$$

b) Will this combination blow the fuse?

The total current drawn will all 3 devices plugged in is 27.3 A

The fuse will blow.