

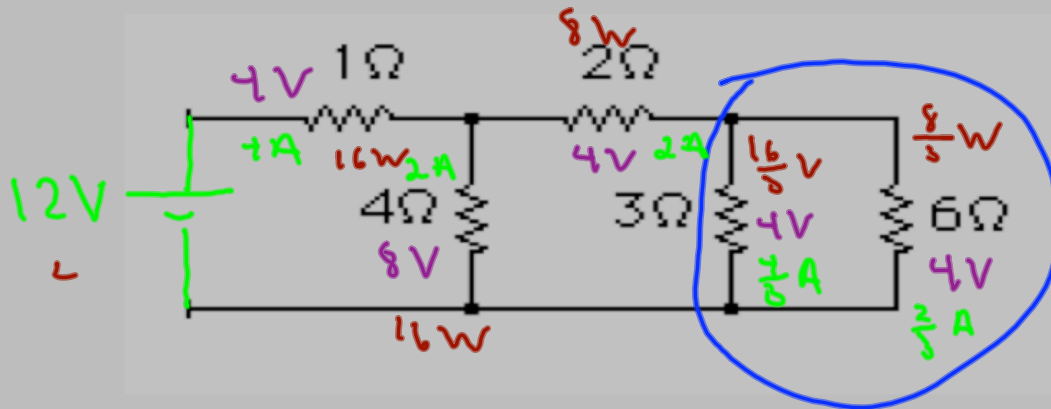
Reminders 2-28-08:

- Next Webassign Due March 3**
- Answers to Circuit Conceptual Questions Will be Posted ASAP**
- Exam 2 Chapters 15-18 Tuesday**

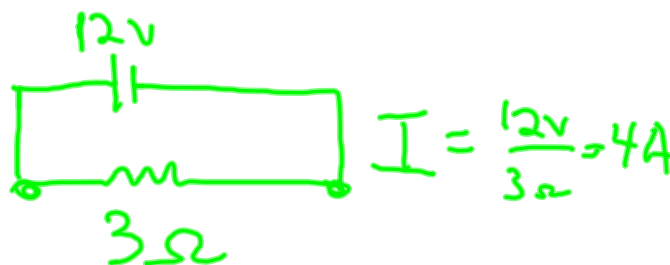
Objectives:

- Magnetic Fields**
- Magnetic Forces**
- Magnetic Torque**
- DC Motors**

- Find the equivalent resistance of the circuit below.



$$\frac{1}{3} + \frac{1}{6} = \frac{1}{R} \quad R = 2\Omega$$



- A 120 V toaster is rated at 1350 W. A 120 V microwave oven is rated at 1100 W. The two are connected into an outlet than has a maximum current rating of 20.0 A. Will a fuse blow if the two items are connected to the outlet simultaneously?



$$P = VI \quad I = \frac{P}{V}$$

$$I = \frac{1350W}{120V} = \underline{11A} \quad I_m = \frac{1100}{120} = \underline{9.2A}$$

Total current 20.2A
Fuse will blow.

- A $1.50\ \Omega$ resistor is connected across a $9.00\ \text{V}$ battery. The voltage between the terminals of the battery is observed to be $8.30\ \text{V}$. Find the current in the circuit and the internal resistance of the battery.



$$\bar{I} = \frac{8.30\ \text{V}}{1.50\ \Omega} = 5.50\ \text{A}$$

$$V_r = 0.70\ \text{V} \quad r = \frac{0.70\ \text{V}}{5.50\ \text{A}} = 0.13\ \Omega$$



– Calculate P_o and P_{avg} for a toaster that draws 11A.

$$V_{RMS} = 120V = \frac{170V}{\sqrt{2}}$$

$$P_{avg} = (120V)(11) = 1320W$$

$$P_o = 2640W$$

$$P_{avg} = \frac{1}{2}P_o$$