Resistance

The equivalent resistance of a set of resistors connected in a series combination is

$$R_{eq} = R_1 + R_2 + R_3...$$

The equivalent resistance of a set of resistors connected in a parallel combination is found from the relationship:

$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2}$$

Circuits involving more than one loop are conveniently analyzed with the use of Kirchhoff's rules:

1. **Junction rule..** At any junction, the sum of the currents must equal zero:

$$\sum_{Junction} I = 0$$

2. **Loop rule.** The sum of the potential differences across all elements around any circuit loop must be zero:

$$\sum_{closedloop} \Delta V = 0$$

Voltage

$$\Delta V = IR$$

Power

$$P = I^2 R = \frac{(\Delta V)^2}{R}$$

Excercise

19. Calculate the power delivered to each resistor in the
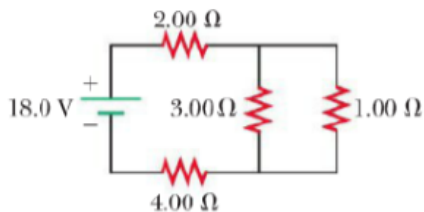W circuit shown in Figure P28.19.

Figure P28.19

Figure 1:

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