

Power

Tuesday, May 23, 2017 2:48 PM

Power is measured in Watts (kw, Mw)

Power produced by a battery

$$P = V \cdot I$$

V_0 I_0

Power used by a resistor, light

$$P = V \cdot I$$

V_1 I_1
 V_2 I_2

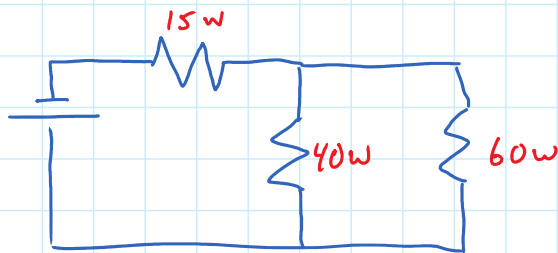
$$P = (IR)I$$

$$= I^2 R$$

I_1 R_1

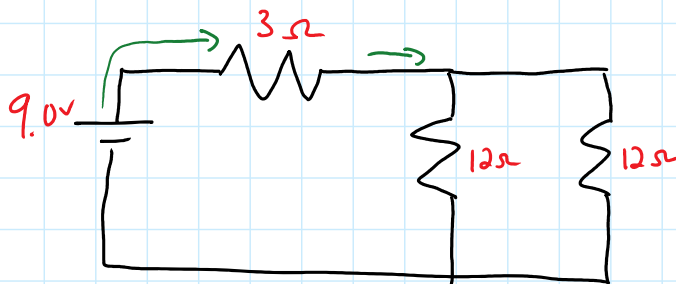
$$P = V \left(\frac{V}{R} \right) = \frac{V^2}{R}$$

In a circuit (series or parallel) the total power used by all devices = power supplied by the battery



output power = 115w

ex



$$V_0 = 9V \quad I_0 = 1A \quad R_{eq} = 9\Omega \quad P_{out} = 9.0W$$

$$V_1 = 3V \quad I_1 = 1A \quad R_1 = 3\Omega \quad P_1 = 3.0W$$

$$V_2 = 6V \quad I_2 = .5A \quad R_2 = 12\Omega \quad P_2 = 3.0W$$

$$V_3 = 6V \quad I_3 = .5A \quad R_3 = 12\Omega \quad P_3 = 3.0W$$