Physics 200 Chapter 20-21 4-Minute Drill

1. Current in terms of charge and time
2. Current in terms of Ohm's Law
3. Potential Difference in terms of Ohm's Law
4. Equivalent resistance for three equal resistors in series
5. Equivalent resistance for three equal resistors in parallel
6. Relationship between resistance and resistivity
7. 3 versions of power
8. Relationship between total current and current through each of 3 resistors in series
9. Relationship between total current and current through each of 3 resistors in parallel
10. Relationship between power supply voltage and the potential drop across each of 3 resistors in series
11. Relationship between power supply voltage and the potential drop across each of 3 resistors in parallel

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Key

Current in terms of charge and time $I = \frac{\Delta Q}{\Delta t}$

Current in terms of Ohm's Law $I = \frac{V}{R}$

Potential Difference in terms of Ohm's Law $V = IR$

Equivalent resistance for three equal resistors in series $R_{eq} = R_1 + R_2 + R_3$

Equivalent resistance for three equal resistors in parallel $\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$

Relationship between resistance and resistivity $R = \frac{\rho L}{A}$

3 versions of power $P = IV = \frac{V^2}{R} = I^2 R$

Relationship between total current and current through each of 3 resistors in series

$$I_{Tot} = I_1 = I_2 = I_3$$

Relationship between total current and current through each of 3 resistors in parallel

$$I_{Tot} = I_1 + I_2 + I_3$$

Relationship between power supply voltage and the potential drop across each of 3 resistors in series

$$V_{\substack{Power \\ Supply}} = V_1 + V_2 + V_3$$

Relationship between power supply voltage and the potential drop across each of 3 resistors in parallel

$$V_{\substack{Power \\ Supply}} = V_1 = V_2 = V_3$$