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Power boxes - series circuit

Link to the [power boxes - series circuit simulation](#)

Play with the simulation for a couple of minutes, to explore what you can do with it.

1. One way to calculate power is to multiply the voltage across a circuit component by the current passing through it. The graphs in the simulation plot voltage as a function of current. This means the power is the ...

[] slope of the line [] shaded area under the curve

2. Each of the graphs has 36 small squares on it. The area of one of these small squares represents a power of ...

_____ W

3. Given the limits imposed by the sliders in the simulation, the **maximum** amount of electrical power that can be put into the circuit by the battery is

_____ W

4. Given the limits imposed by the sliders in the simulation, the **minimum** amount of electrical power that can be put into the circuit by the battery is

_____ W

5. Start by setting the resistance of each resistor to 6 ohms. If you then decrease the resistance of resistor 1, the power provided to the circuit by the battery

[] increases [] decreases [] stays the same

because the current in the circuit

[] increases [] decreases [] stays the same

6. Start by setting the resistance of each resistor to 6 ohms. If you then decrease the resistance of resistor 1, the power dissipated in ...

Resistor 1 ☐ increases ☐ decreases ☐ stays the same

Resistor 2 ☐ increases ☐ decreases ☐ stays the same

Resistor 3 ☐ increases ☐ decreases ☐ stays the same

7. When three resistors are in series, as they are here, the resistor dissipating the most power is the one with the ...

☐ most resistance ☐ least resistance

This worksheet was created by Andrew Duffy of Boston University on Dec. 28, 2022.