Concept-Development Practice Page

Circuit Resistance

All circuits below have the same lamp A with resistance of 6 Ω , and the same 12-volt battery with negligible resistance. The unknown resistances of lamps B through L are such that the current in lamp A remains 1 ampere. Fill in the blanks.



Circuit a: How much current flows through the battery? _____ A

Circuit b: Assume lamps C and D are identical. Current through lamp D is

_____A.

Circuit c: Identical lamps E and F replace lamp D.

Current through lamp C is ______A.

Circuit d: Lamps G and H replace lamps E and F, and the resistance of lamp G is twice that of lamp H. Current through

lamp H is _____ A.

Circuit e: Identical lamps K and L replace lamp H. Current through lamp L is ______ _A.

The equivalent resistance of a circuit is the value of a single resistor that will replace all the resistors of the circuit to produce the same load on the battery. How do the equivalent resistances of the circuits a through e compare?

CONCEPTUAL PHYSICS









sum of resistances