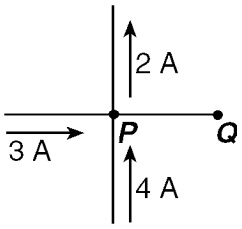
Name: _____

Power, Energy and Kirchoff's Rules Worksheet

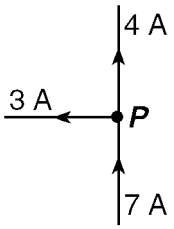
1) The diagram below shows electric currents in conductors that meet at junction *P*.

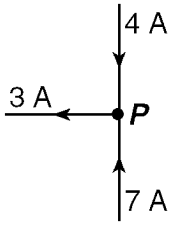


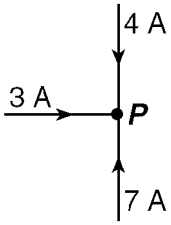
What are the magnitude and direction of the current in conductor *PQ*?

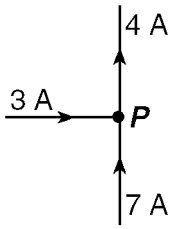
A) 9 A toward *P* B) 9 A toward *Q* C) 5 A toward *Q* D) 5 A toward *P*

2) Which diagram below correctly shows currents traveling near junction *P* in an electric circuit?

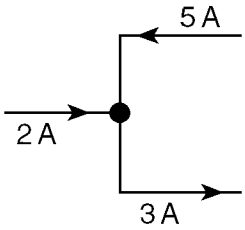
A) 

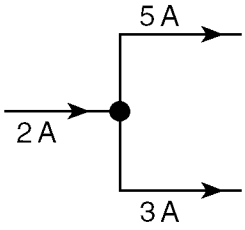
B) 

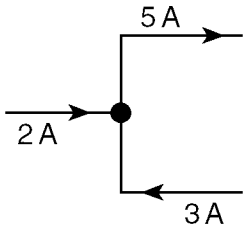
C) 

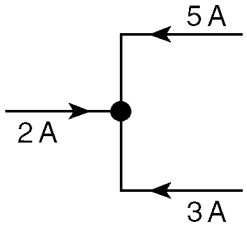
D) 

3) Which diagram shows correct current direction in a segment of an electric circuit?

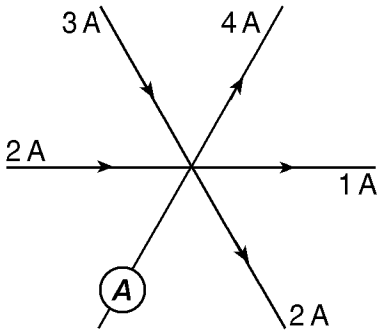
A) 

B) 

C) 

D) 

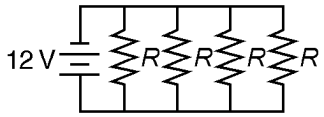
4) The diagram below represents currents in a segment of an electric circuit.



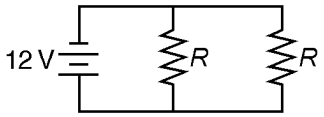
What is the reading of ammeter *A*?

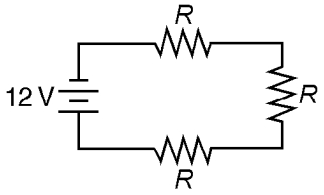
A) 1 A B) 2 A C) 3 A D) 4 A

5) Identical resistors (*R*) are connected across the same 12-volt battery. Which circuit uses the *greatest* power?

A) 

B) 

C) 

D) 

6) A potential drop of 50. volts is measured across a 250-ohm resistor. What is the power developed in the resistor?

7) In a series circuit containing two lamps, the battery supplies a potential difference of 1.5 volts. If the current in the circuit is 0.10 ampere, at what rate does the circuit use energy?

A) 15 W B) 1.5 W C) 0.15 W D) 0.015 W

8) While operating at 120 volts, an electric toaster has a resistance of 15 ohms. What is the power used by the toaster?

9) A microwave oven operating at 120 volts is used to heat a hot dog. If the oven draws 12.5 amperes of current for 45 seconds, what is the power dissipated by the oven?

10) What is the total electrical energy used by a 1,500-watt hair dryer operating for 6.0 minutes?

11) An operating electric heater draws a current of 10. amperes and has a resistance of 12 ohms. How much energy does the heater use in 60. seconds?