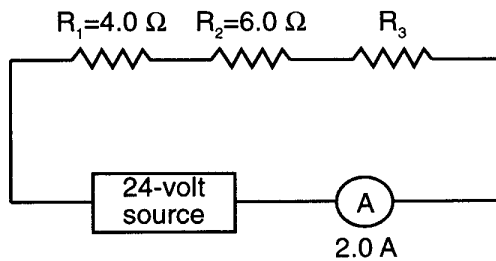


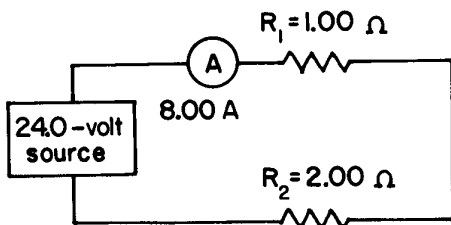
Series Circuit Problems

1. The diagram below shows a circuit with three resistors.



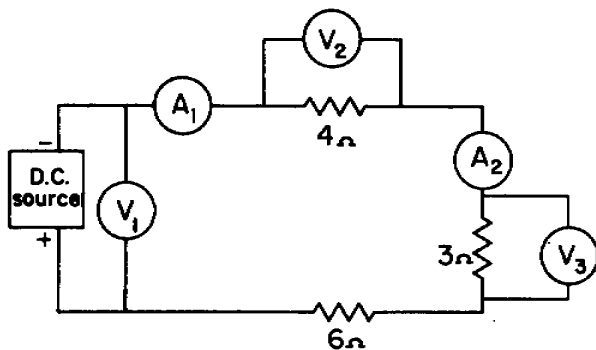
What is the resistance of resistor R_3 ?

- A) 6.0Ω B) 2.0Ω
 C) 12Ω D) 4.0Ω
2. Base your answer to the following question on the diagram below.



What is the total resistance of the circuit?

- A) 0.500Ω B) 2.00Ω
 C) 3.00Ω D) 4.00Ω
3. Base your answer to the following question on the diagram below. The reading of voltmeter V_1 is 26 volts, and the reading of ammeter A_1 is 2 amperes.



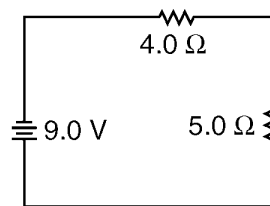
What is the total resistance of the circuit?

- A) $3/4 \Omega$ B) $4/3 \Omega$
 C) 10Ω D) 13Ω

4. A 2.0-ohm resistor and a 4.0-ohm resistor are connected in series with a 12-volt battery. If the current through the 2.0-ohm resistor is 2.0 amperes, the current through the 4.0-ohm resistor is

- A) 1.0 A B) 2.0 A
 C) 3.0 A D) 4.0 A

5. A 9.0-volt battery is connected to a 4.0-ohm resistor and a 5.0-ohm resistor as shown in the diagram below.



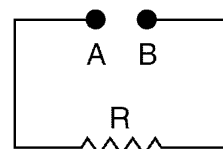
What is the current in the 5.0-ohm resistor?

- A) 1.0 A B) 2.3 A
 C) 1.8 A D) 4.0 A

6. A 10.-ohm resistor and a 20.-ohm resistor are connected in series to a voltage source. When the current through the 10.-ohm resistor is 2.0 amperes, what is the current through the 20.-ohm resistor?

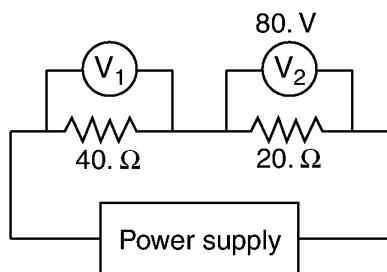
- A) 1.0 A B) 2.0 A
 C) 0.50 A D) 4.0 A

7. What must be inserted between points A and B to establish a steady electric current in the incomplete circuit represented in the diagram below?



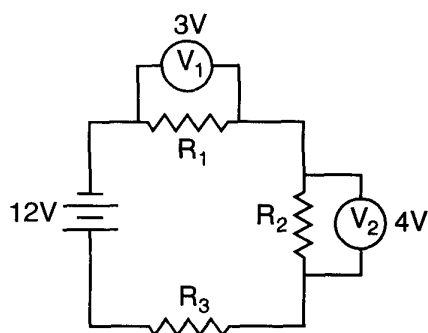
- A) switch
 B) voltmeter
 C) magnetic field source
 D) source of potential difference

8. In the circuit shown below, voltmeter V_2 reads 80. volts.



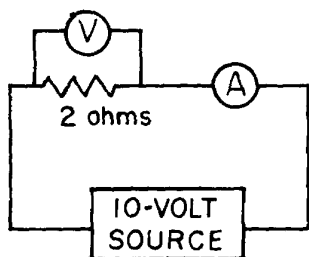
What is the reading of voltmeter V_1 ?

- A) 160 V B) 80. V
C) 40. V D) 20. V
9. The diagram below shows three resistors, R_1 , R_2 , and R_3 , connected to a 12-volt battery.



If voltmeter V_1 reads 3 volts and voltmeter V_2 reads 4 volts, what is the potential drop across resistor R_3 ?

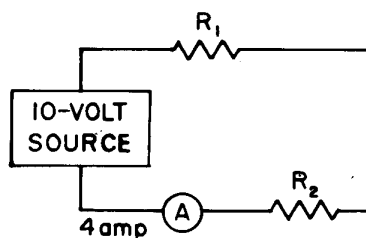
- A) 12 V B) 5 V C) 0 V D) 4 V
10. Base your answer to the following question on the diagram below.



The reading of voltmeter V will be

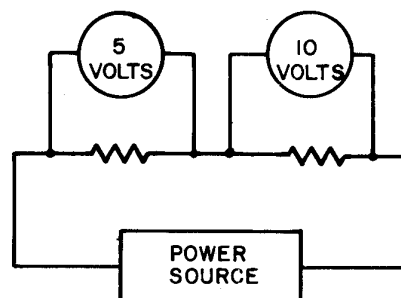
- A) 0.2 volt B) 5 volts
C) 10 volts D) 20 volts

11. Base your answer to the following question on the circuit diagram below.



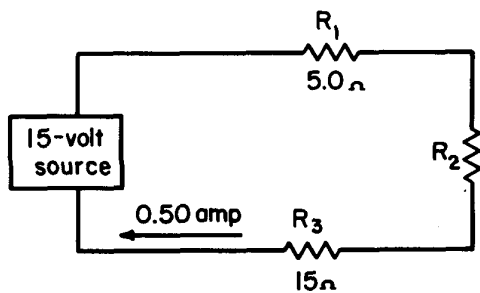
The voltage drop at R_1 will be

- A) less than 10 volts
B) 10 volts
C) 20 volts
D) more than 20 volts
12. What is the voltage of the power supply shown on the below?



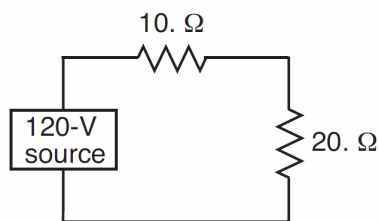
- A) 0.5 volt B) 10 volts
C) 15 volts D) 50 volts

Base your answers to questions 13 through 15 on the diagram below which shows 3 resistors connected to a 15-volt source.



13. If resistor R_3 is removed and replaced by a resistor of lower value, the resistance of the circuit will
- A) decrease B) increase
C) remain the same
14. The total resistance of the circuit is
- A) $10\ \Omega$ B) $20\ \Omega$
C) $30\ \Omega$ D) $40\ \Omega$
15. The potential difference across R_2 is
- A) 2.5 V B) 5.0 V
C) 7.5 V D) 10 V
-

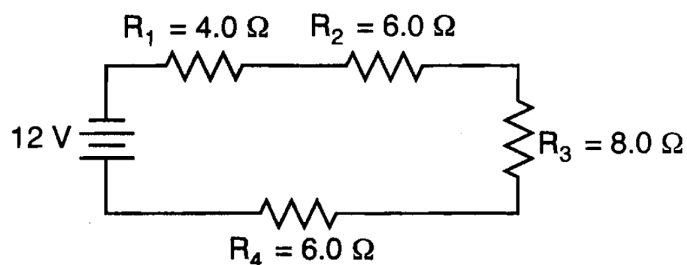
16. The diagram below represents a circuit consisting of two resistors connected to a source of potential difference.



What is the current through the 20.-ohm resistor?

- A) 0.25 A B) 6.0 A
C) 12 A D) 4.0 A
-

17. The circuit diagram below represents four resistors connected to a 12-volt source.



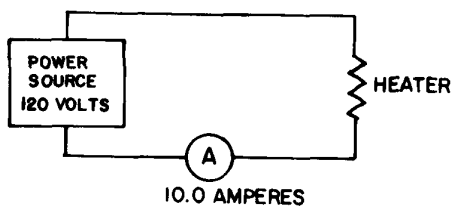
What is the total current in the circuit?

- A) 0.50 A B) 2.0 A C) 8.6 A D) 24 A

18. A 3.0-ohm resistor and a 6.0-ohm resistor are connected in series in an operating electric circuit. If the current through the 3.0-ohm resistor is 4.0 amperes, what is the potential difference across the 6.0-ohm resistor?

- A) 8.0 V B) 2.0 V
C) 12 V D) 24 V

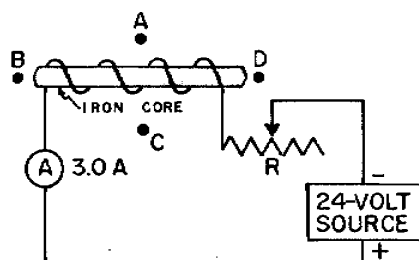
19. Base your answer to the following question on the circuit diagram shown below of a 120-volt power source running a heater that draws 10.0 amperes of current.



The resistance of the heater has a value of

- A) 0.083 ohm B) 12 ohms
C) 130 ohms D) 1,200 ohms

20. Base your answer to the following question on the circuit diagram below which represents a solenoid in series with a variable resistor and a voltage source.



The resistance of the circuit is

- A) 72 Ω B) 24 Ω
C) 12 Ω D) 8.0 Ω