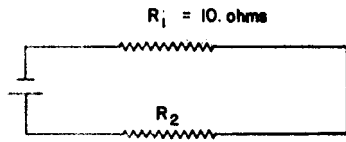


1. The total resistance of the series circuit shown is 15 ohms. What is the resistance of R_2 ?

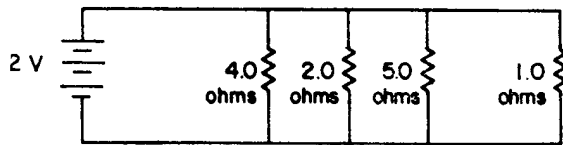


- A. less than 5.0 ohms B. 5.0 ohms
C. 15 ohms D. 25 ohms

2. When three 20-ohm resistors are wired in parallel and connected to a 10-volt source, the total resistance of the circuit will be

- A. less than 20 ohms
B. between 20 and 60 ohms
C. 60 ohms
D. more than 60 ohms

3. In the circuit diagram shown, what is the current through the 4.0-ohm resistor?

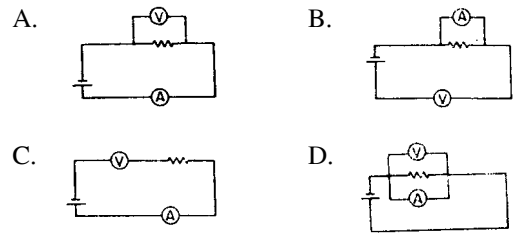


- A. 1.0 ampere B. 0.33 ampere
C. 3.0 amperes D. 48 amperes

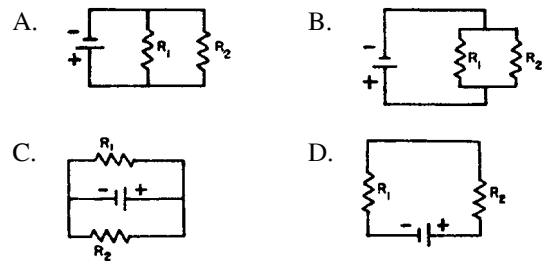
4. Compared to the total resistance of two 5-ohm resistors connected in series, the total resistance of two 5-ohm resistors connected in parallel is

- A. less B. greater C. the same

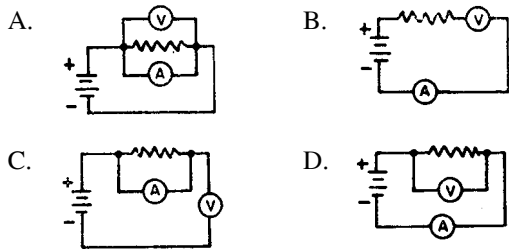
5. In the circuits represented here, the symbol for the ammeter is A and the symbol for the voltmeter is V. Which diagram represents the proper connections for determining the resistance of the circuit?



6. Which diagram represents resistances connected in series?

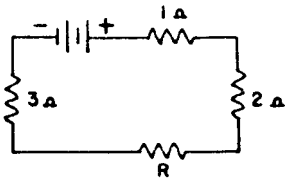


7. Which circuit shows the correct use of meters?
(A—ammeter, V—voltmeter)

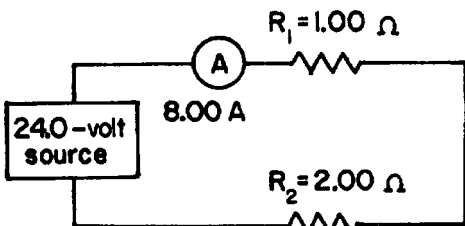


8. If the total resistance of the circuit shown is 15 ohms, what is the value of resistor R ?

- A. 6 ohms
- B. 9 ohms
- C. 12 ohms
- D. 18 ohms



9. Base your answer(s) to the following question(s) on the diagram given.



The voltage drop across R_1 is

- A. 0 V
- B. 8.00 V
- C. 12.0 V
- D. 24.0 V

10. What is the total resistance of the circuit?

- A. 0.500 Ω
- B. 2.00 Ω
- C. 3.00 Ω
- D. 4.00 Ω

11. What is the current in resistor R_2 ?

- A. 8.00 A
- B. 2.00 A
- C. 16.0 A
- D. 4.00 A

12. a) Draw a circuit diagram showing the following elements connected in parallel:

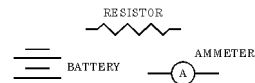
Elements

One 12.0-volt battery

One 2.0-ohm resistor

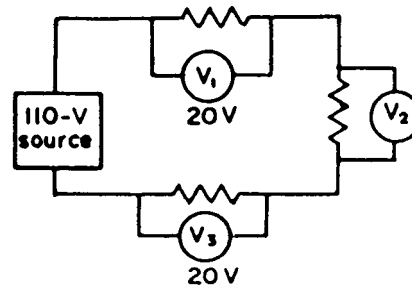
One 3.0-ohm resistor

Place an ammeter in the circuit to read the total current. Use the symbols shown. [Assume availability of any number of wires of negligible resistance.]



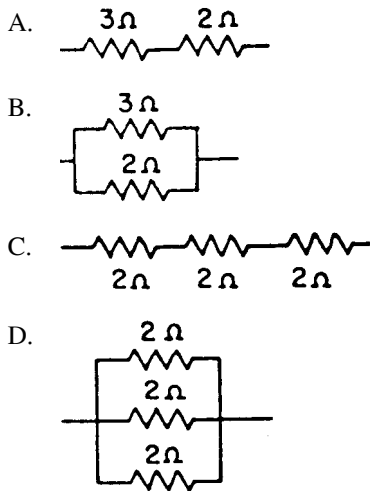
b) Determine the total circuit resistance. [Show all calculations.]

13. In the circuit diagram shown, which is the correct reading for meter V_2 ?



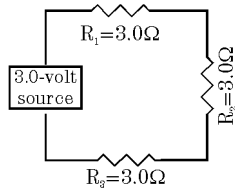
- A. 20 V
- B. 70 V
- C. 90 V
- D. 110 V

14. Which circuit segment has an equivalent resistance of 6 ohms?



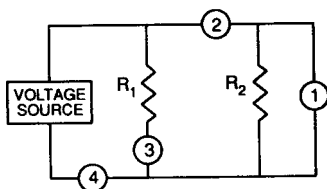
15. The diagram represents a series circuit containing three resistors. What is the current through resistor R_2 ?

- A. 1.0 A B. 0.33 A
C. 3.0 A D. 9.0 A



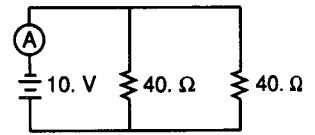
16. Two resistors are connected to a source of voltage as shown in the diagram. At which position should an ammeter be placed to measure the current passing only through resistor R_1 ?

- A. 1 B. 2
C. 3 D. 4

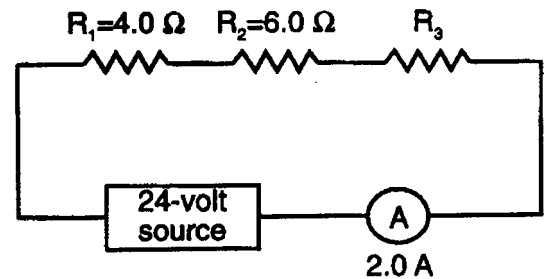


17. In the circuit diagram, ammeter A measures the current supplied by the 10-volt battery. The current measured by ammeter A is

- A. 0.13 A
B. 2.0 A
C. 0.50 A
D. 4.0 A

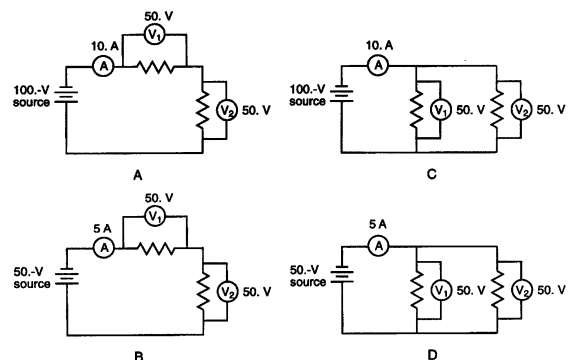


18. The diagram shows a circuit with three resistors. What is the resistance of resistor R_3 ?



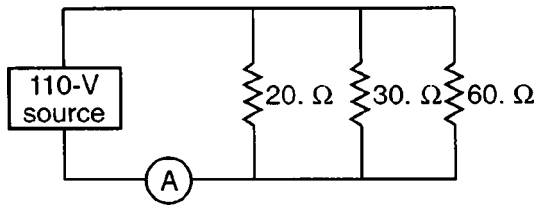
- A. 6.0 Ω B. 2.0 Ω C. 12 Ω D. 4.0 Ω

19. In which pair of circuits shown could the readings of voltmeters V_1 and V_2 and ammeter A be correct?



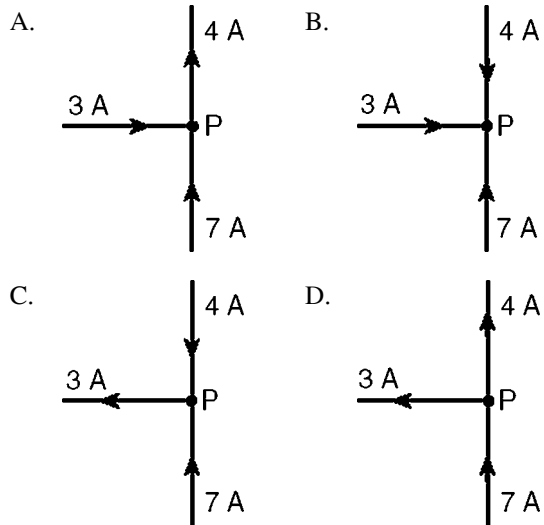
- A. A and B B. B and C
C. C and D D. A and D

20. In the accompanying diagram of a parallel circuit, ammeter A measures the current supplied by the 110-volt source.

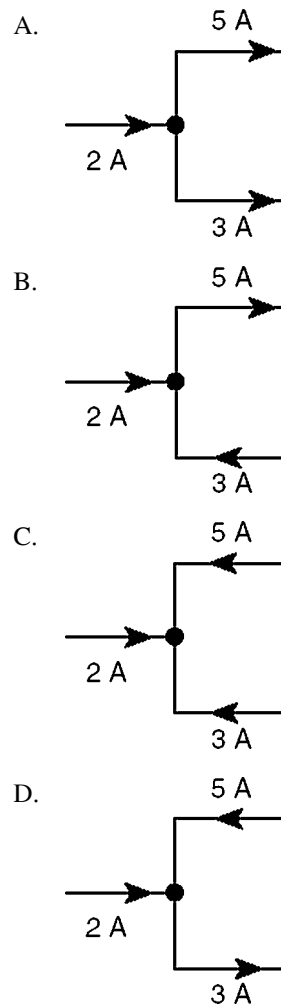


The current measured by ammeter A is

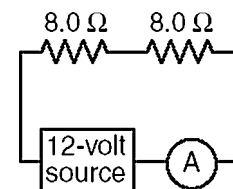
- A. 1.0 A B. 0.10 A C. 5.5 A D. 11 A
21. Which diagram below correctly shows currents traveling near junction P in an electric circuit?



22. Which diagram shows correct current direction in a segment of an electric circuit?



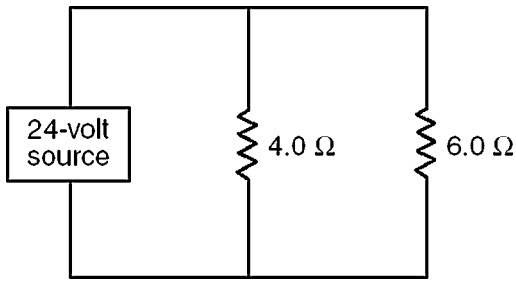
23. The accompanying diagram shows a circuit with two resistors.



What is the reading on ammeter A?

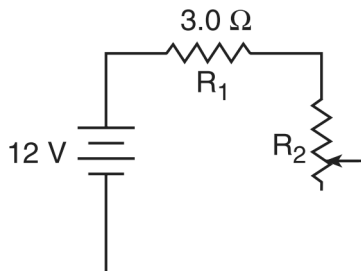
- A. 1.3 A B. 1.5 A C. 3.0 A D. 0.75 A

24. Base your answer(s) to the following question(s) on the circuit diagram below, which shows two resistors connected to a 24-volt source of potential difference.



On the diagram above, use the appropriate circuit symbol to indicate a correct placement of a voltmeter to determine the potential difference across the circuit.

25. The diagram below represents an electric circuit consisting of a 12-volt battery, a 3.0-ohm resistor, R_1 , and a variable resistor, R_2 .

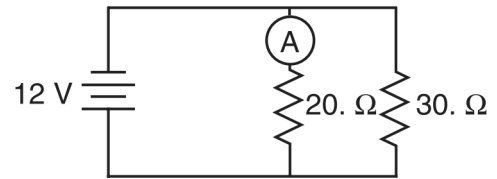


At what value must the variable resistor be set to produce a current of 1.0 ampere through R_1 ?

- A. $6.0\ \Omega$ B. $9.0\ \Omega$ C. $3.0\ \Omega$ D. $12\ \Omega$

26. Base your answer(s) to the following question(s) on the information and diagram below.

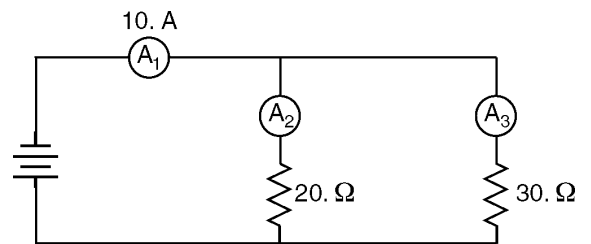
A 20.-ohm resistor and a 30.-ohm resistor are connected in parallel to a 12-volt battery as shown. An ammeter is connected as shown.



What is the current reading of the ammeter?

- A. 1.0 A B. 0.60 A
C. 0.40 A D. 0.20 A

27. In the circuit diagram shown below, ammeter A_1 reads 10 amperes.



What is the reading of ammeter A_2 ?

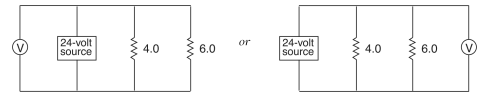
- A. 6.0 A B. 10. A C. 20. A D. 4.0 A

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- 1. Answer: B
- 2. Answer: A
- 3. Answer: C
- 4. Answer: A
- 5. Answer: A
- 6. Answer: D
- 7. Answer: D
- 8. Answer: B
- 9. Answer: B
- 10. Answer: C
- 11. Answer: A
- 12. Answer:
- 13. Answer: B
- 14. Answer: C
- 15. Answer: B
- 16. Answer: B
- 17. Answer: C
- 18. Answer: B
- 19. Answer: D
- 20. Answer: D

- 21. Answer: D
- 22. Answer: B
- 23. Answer: D

24. Answer:



- 25. Answer: B
- 26. Answer: B
- 27. Answer: A