

Final Reg Current and Circuits Review

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1) How much energy does a 100-W light bulb use in 8.0 hours? 1) _____

2) If the resistance in a constant voltage circuit is doubled, the power dissipated by that circuit will 2) _____

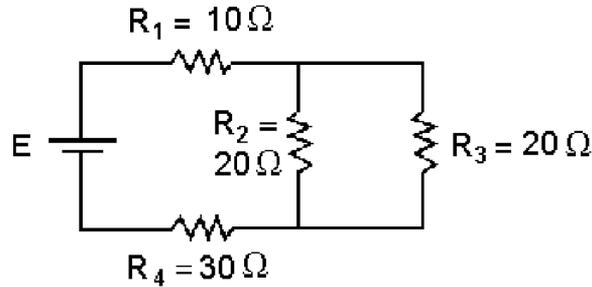


FIGURE 19-2

3) If 1.5 A flows through R_2 , what is E in Fig. 19-2? 3) _____

4) What is the total resistance of the circuit in Fig. 19-2? 4) _____

5) If $E = 40\text{ V}$, what is the voltage on R_1 in Fig. 19-2? 5) _____

6) If $E = 20\text{ V}$, what is the current through R_3 in Fig. 19-2? 6) _____

7) How much energy does a 25-W soldering iron use in 8.0 hours? 7) _____

8) If the resistance in a circuit with constant current flowing is doubled, the power dissipated by that circuit will 8) _____

9) When resistors are connected in parallel, we can be certain that 9) _____

10) If the current flowing through a circuit of constant resistance is doubled, the power dissipated by that circuit will 10) _____

11) How much charge must pass by a point in 10 s for the current to be 0.50 A? 11) _____

12) Three identical resistors are connected in parallel to a 12-V battery. What is the voltage of any one of the resistors? 12) _____

13) Four 20- Ω resistors are connected in series. What is the equivalent resistance? 13) _____

14) What is the voltage across a 5.0- Ω resistor if the current through it is 5.0 A? 14) _____

15) Four resistors of 12, 3.0, 5.0, and 4.0 Ω are connected in series. A 12-V battery is connected to the combination. What is the current through the battery? 15) _____

- 16) What is the nominal resistance of a 100-W light bulb designed to be used in a 120-V circuit? 16) _____
- 17) A 22-A current flows into a parallel combination of a 4.0- Ω , 6.0- Ω , and 12- Ω resistors. What current flows through the 6.0- Ω resistor? 17) _____
- 18) What is 1 W equivalent to? 18) _____
- 19) A lamp uses a 150-W bulb. If it is used at 120 V, what current does it draw? 19) _____
- 20) Three identical resistors are connected in parallel to a battery. If the current of 12 A flows from the battery, how much current flows through any one of the resistors? 20) _____
- 21) The resistance of a wire is defined as 21) _____

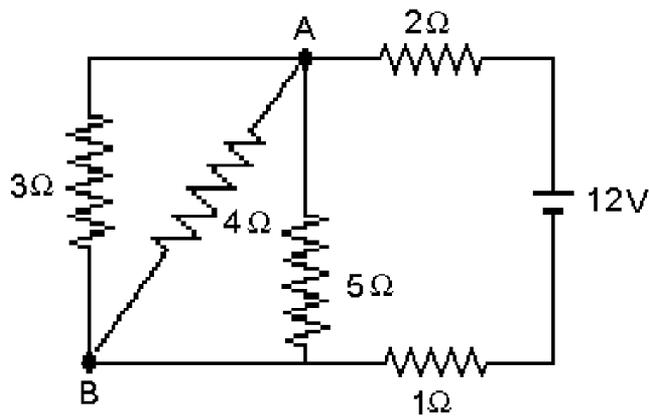


FIGURE 19-4

- 22) For the circuit in Fig. 19-4, determine the current in the 4- Ω resistor. 22) _____
- 23) For the circuit in Fig. 19-4, determine the current in the 3- Ω resistor. 23) _____
- 24) For the circuit in Fig. 19-4, determine the current in the 1- Ω resistor. 24) _____

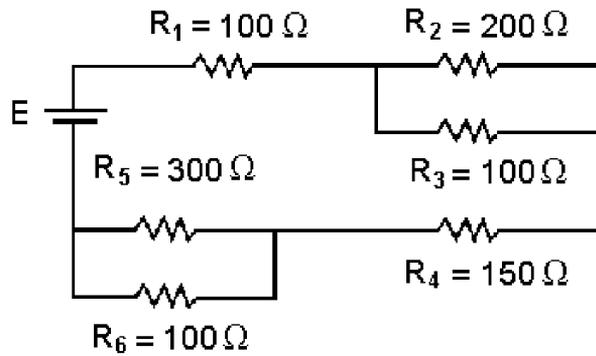


FIGURE 19-3

- 25) What is the total resistance of the circuit in Fig. 19-3? 25) _____
- 26) If $E = 4.0 \text{ V}$, what is the current through R_6 in Fig. 19-3? 26) _____
- 27) If $E = 100 \text{ V}$, what is the voltage across R_5 in Fig. 19-3? 27) _____
- 28) A 14-A current flows into a series combination of a 3.0- Ω and a 4.0- Ω resistor. What is the voltage drop across the 4.0- Ω resistor? 28) _____
- 29) A 3.0- Ω resistor is connected in parallel with a 6.0- Ω resistor. This combination is connected in series with a 4.0- Ω resistor. The resistors are connected to a 12-volt battery. How much power is dissipated in the 3.0- Ω resistor? 29) _____
- 30) A total of 2.0×10^{13} protons pass a given point in 15 s. What is the current? 30) _____
- 31) Two 4.0- Ω resistors are connected in parallel, and this combination is connected in series with 3.0 Ω . What is the effective resistance of this combination? 31) _____
- 32) A coulomb per second is the same as 32) _____
- 33) Two resistors of 5.0 and 9.0 Ω are connected in parallel. A 4.0- Ω resistor is then connected in series with the parallel combination. A 6.0-V battery is then connected to the series-parallel combination. What is the current through the 4.0- Ω resistor? 33) _____
- 34) Three resistors of 12, 12, and 6.0 Ω are connected in series. A 12-V battery is connected to the combination. What is the current through the battery? 34) _____
- 35) Two resistors of 15 and 30 Ω are connected in parallel. If the combination is connected in series with a 9.0-V battery and a 20- Ω resistor, what is the current through the 15- Ω resistor? 35) _____
- 36) A 22-A current flows into a parallel combination of a 4.0- Ω , 6.0- Ω , and 12- Ω resistor. What current flows through the 4.0- Ω resistor? 36) _____
- 37) A 25-W soldering iron runs on 110 V. What is its resistance? 37) _____

- 38) Three identical resistors are connected in series to a 12-V battery. What is the voltage across any one of the resistors? 38) _____
- 39) A combination of 2.0 Ω in series with 4.0 Ω is connected in parallel with 3.0 Ω . What is the equivalent resistance? 39) _____
- 40) A charge of 12 C passes through an electroplating apparatus in 2.0 min. What is the average current? 40) _____
- 41) Three identical resistors are connected in series to a battery. If the current of 12 A flows from the battery, how much current flows through any one of the resistors? 41) _____
- 42) What current is flowing if 0.67 C of charge pass a point in 0.30 s? 42) _____
- 43) Two resistors of 5.0 and 9.0 Ω are connected in parallel. A 4.0- Ω resistor is then connected in series with the parallel combination. A 6.0-V battery is then connected to the series-parallel combination. What is the current through the 5.0- Ω resistor? 43) _____
- 44) A 14-A current flows into a series combination of a 3.0- Ω and a 4.0- Ω resistor. What is the voltage drop across the 3.0- Ω resistor? 44) _____
- 45) A light bulb operating at 110 V draws 1.40 A of current. What is its resistance? 45) _____
- 46) The total amount of charge that passes through a wire's full cross section at any point per unit of time is referred to as 46) _____
- 47) Three resistors of 12, 12, and 6.0 Ω are connected in parallel. A 12-V battery is connected to the combination. What is the current through the 6.0- Ω resistor? 47) _____
- 48) What current is flowing if 4.0×10^{16} electrons pass a point in 0.50 s? 48) _____
- 49) When two or more resistors are connected in series to a battery 49) _____
- 50) The direction of convention current is taken to be the direction that 50) _____
- 51) Three resistors of 4.0, 6.0, and 10.0 Ω are connected in parallel. If the combination is connected in series with a 12.0-V battery and a 2.0- Ω resistor, what is the current through the 10.0- Ω resistor? 51) _____
- 52) As more resistors are added in parallel to a constant voltage source, the power supplied by the source 52) _____
- 53) If the voltage across a circuit of constant resistance is doubled, the power dissipated by that circuit will 53) _____
- 54) A 4000- Ω resistor is connected across 220 V. What current will flow? 54) _____

- 55) A 1500-W heater is connected to a 120-V line for 2.0 hours. How much heat energy is produced? 55) _____
- 56) When resistors are connected in series, 56) _____
- 57) A toaster is rated 800 W at 120 V. What is the resistance of its heating element? 57) _____
- 58) 5.00 A is flowing through an $10.0\ \Omega$ resistor. How much power is being dissipated? 58) _____
- 59) When two or more resistors are connected in parallel to a battery, 59) _____
- 60) A 110-V hair dryer is rated at 1200 W. What current will it draw? 60) _____
- 61) What potential difference is required to cause 4.00 A to flow through a resistance of $330\ \Omega$? 61) _____
- 62) A 22-A current flows into a parallel combination of $4.0\ \Omega$, $6.0\ \Omega$, and $12\ \Omega$ resistors. What current flows through the $12\text{-}\Omega$ resistor? 62) _____
- 63) A $6.0\text{-}\Omega$ and a $12\text{-}\Omega$ resistor are connected in parallel to a 36-V battery. What power is dissipated by the $6.0\text{-}\Omega$ resistor? 63) _____
- 64) A $2.0\text{-}\Omega$ resistor is in series with a parallel combination of $4.0\ \Omega$, $6.0\ \Omega$, and $12\ \Omega$. What is the equivalent resistance of this combination? 64) _____
- 65) A lamp uses a 150-W bulb. If it is used at 120 V, what is its resistance? 65) _____
- 66) A 150-W light bulb running on 110 V draws how much current? 66) _____