Continuing Education Course #513
DC Circuit Fundamentals

1. The voltage drop across a 100 ohm resistor is V = 0.2V. The current through the resistor is _____.
- a. 0.025 A
- b. 0.003 A
- c. 0.002 A
- d. 0.004 A

2. The current through a 5 kohm resistor is 0.1 m The voltage drop across the resistor is _____.
- a. 4 V
- b. 0.1 V
- c. 3 V
- d. 0.5 V

3. The voltage drop across a resistor is 0.5 V. The current through the resistor is 0.2 m The resistance of the resistor is _____.
- a. 2500 ohms
- b. 250 ohms
- c. 1470 ohms
- d. 3000 ohms

4. A 100 ohm resistor has a current of 40 mA running through it. The power dissipated through the resistor is _____.
- a. 0.08 W
- b. 0.16 W
- c. 1 W
- d. 0.32 W

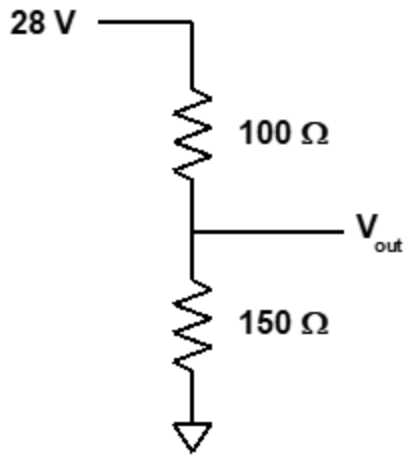
5. The resistor in the problem above is used in a circuit with the same power dissipation. A minimal acceptable power rating for this resistor is _____.
- a. 0.1 W
- b. 0.08 W
- c. 0.2 W
- d. 0.05 W

6. Three resistors are connected in series having values of 150 ohms, 200 ohms, and 350 ohms. The total resistance is _____.
- a. 700 ohms
- b. 350 ohms
- c. 200 ohms
- d. 70 ohms

7. Two resistors are connected in parallel having values of 4.7 kohms and 10 kohms. The total resistance is _____.

- a. 1.47 kohms
- b. 5.17 kohms
- c. 4.70 kohms
- d. 3.20 kohms

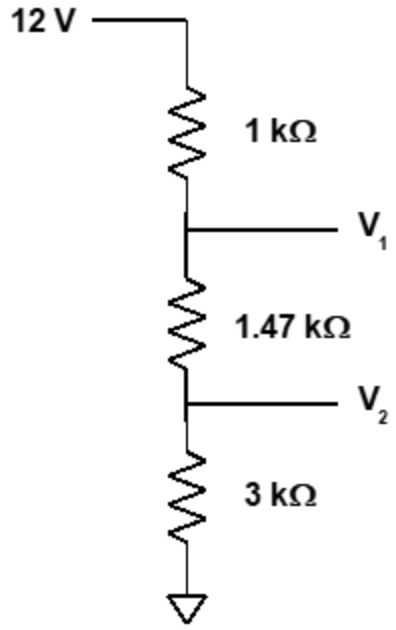
Figure A1



8. The output voltage of the voltage divider shown in Figure A1 is _____.

- a. 20.4 V
- b. 16.8 V
- c. 28.0 V
- d. 12.1 V

Figure A2



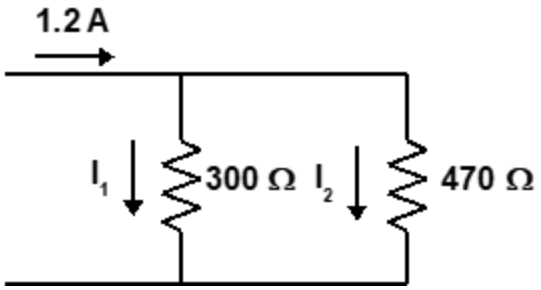
9. The output voltage, V1, of the voltage divider shown in Figure A2 is _____.

- a. 9.81 V
- b. 8.87 V

○ c. 10.3 V
○ d. 7.46 V

10. The output voltage, V2, of the voltage divider shown in Figure A2 is _____.
○ a. 5.13 V
○ b. 7.24 V
○ c. 5.73 V
○ d. 6.58 V

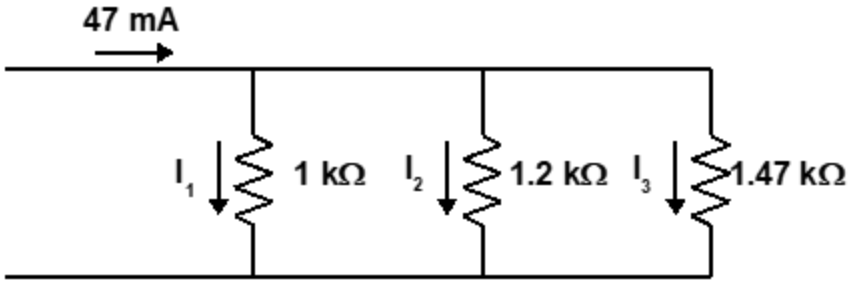
Figure A3



11. The branch current, I1, in the current divider shown in Figure A3 is _____.
○ a. 0.648 A
○ b. 0.632 A
○ c. 0.732 A
○ d. 0.823 A

12. The branch current, I2, in the current divider shown in Figure A3 is _____.
○ a. 0.672 A
○ b. 0.468 A
○ c. 0.734 A
○ d. 0.832 A

Figure A4



13. The branch current, I1, in the current divider shown in Figure A4 is _____.
○ a. 17.3 mA
○ b. 16.8 mA
○ c. 19.5 mA
○ d. 18.7 mA

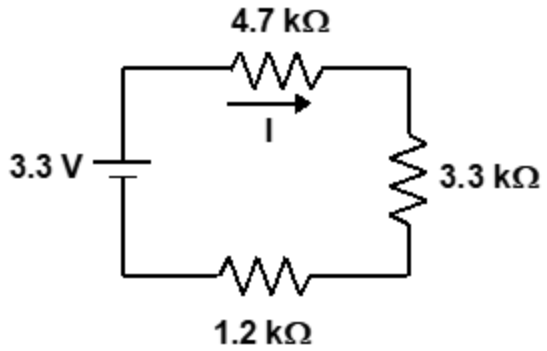
14. The branch current, I2, in the current divider shown in Figure A4 is _____.
○ a. 15.6 mA
○ b. 17.8 mA

○ c. 12.2 mA
○ d. 9.87 mA

15. The branch current, I3, in the current divider shown in Figure A4 is _____.
○ a. 13.3 mA
○ b. 15.2 mA
○ c. 12.7 mA
○ d. 21.3 mA

16. Voltage is added when flowing through a source, and subtracted when flowing through a resistor. Conventional current flow is defined as the same direction as _____ charges flow.
○ a. negative
○ b. no
○ c. positive
○ d. all

Figure A5



17. For the series circuit shown in Figure A5, the current I in the circuit is _____.
○ a. 642 uA
○ b. 267 uA
○ c. 481 uA
○ d. 359 uA

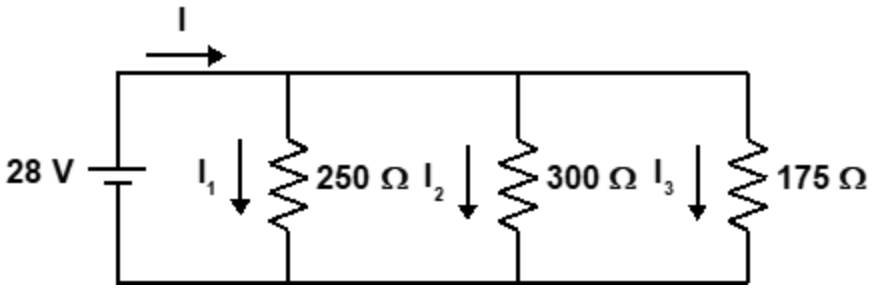
18. The voltage drop in the 4.7 kohm resistor in the series circuit shown in Figure A5 is _____.
○ a. 2.73 V
○ b. 1 .12 V
○ c. 3.72 V
○ d. 1.69 V

19. The voltage drop in the 3.3 kohm resistor in the series circuit shown in Figure A5 is _____.
○ a. 1.18 V
○ b. 2.68 V
○ c. 0.432 V
○ d. 3.12 V

20. The voltage drop in the 1.2 kohm resistor in the series circuit shown in Figure A5 is _____.
○ a. 0.213 V
○ b. 0.430 V

○ c. 1.75 V
○ d. 0.127 V

Figure A6



21. For the parallel circuit shown in Figure A6, the current I1 is _____.
○ a. 0.212 A
○ b. 0.416 A
○ c. 0.314 A
○ d. 0.112 A

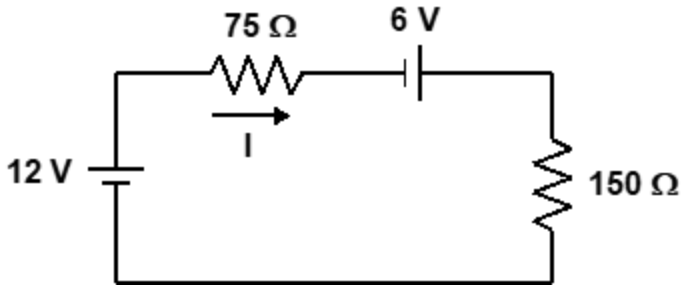
22. For the parallel circuit shown in Figure A6, the current I2 is _____.
○ a. 0.127 A
○ b. 0.213 A
○ c. 0.0933 A
○ d. 0.372 A

23. For the parallel circuit shown in Figure A6, the current I3 is _____.
○ a. 0.160 A
○ b. 0.153 A
○ c. 0.172 A
○ d. 0.281 A

24. For the parallel circuit in shown in Figure A6, the total current I is _____.
○ a. 0.214 A
○ b. 0.576 A
○ c. 0.365 A
○ d. 0.127 A

25. For the parallel circuit shown in Figure A6, the voltage drop across the resistors is _____.
○ a. 14 V
○ b. 28 V
○ c. 32 V
○ d. 17 V

Figure A7

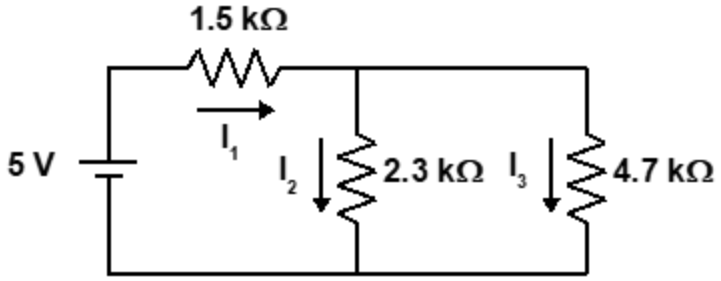


26. In the circuit shown in Figure A7, the current I is _____.
- a. 0.12 A
- b. 0.05 A
- c. 0.17 A
- d. 0.08 A

27. In the circuit shown in Figure A7, the voltage drop in the 75 ohm resistor is _____.
- a. 6 V
- b. 8 V
- c. 10 V
- d. 12 V

28. In the circuit shown in Figure A7, the voltage drop in the 150 ohm resistor is _____.
- a. 6 V
- b. 8 V
- c. 12 V
- d. 10 V

Figure A8



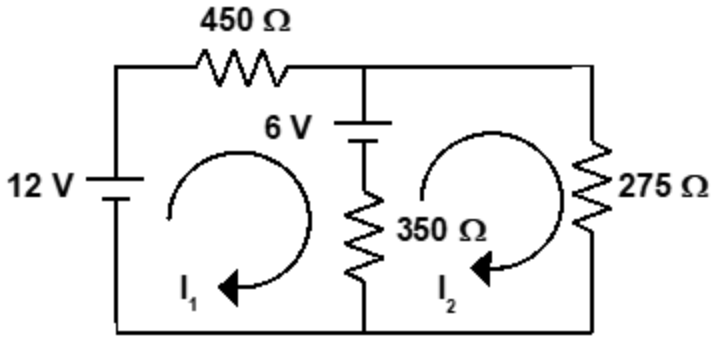
29. In the circuit shown in Figure A8, the current I1 is _____.
- a. 2.73 mA
- b. 3.67 mA
- c. 0.157 mA
- d. 1.64 mA

30. In the circuit shown in Figure A8, the current I2 is _____.
- a. 2.35 mA
- b. 0.812 mA
- c. 3.72 mA
- d. 1.10 mA

31. In the circuit shown in Figure A8, the current I3 is _____.

- a. 0.214 mA
- b. 0.0126 mA
- c. 0.540 mA
- d. 0.725 mA

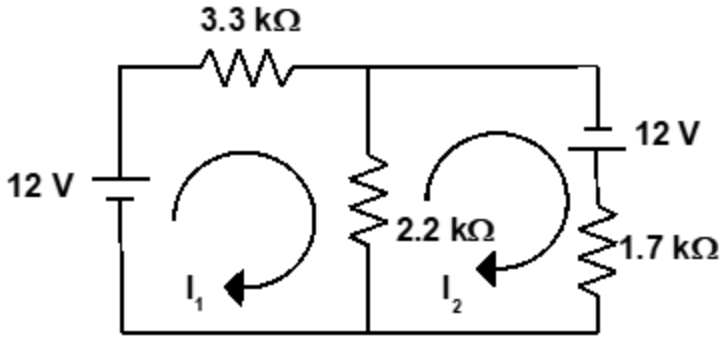
Figure A9



32. In the circuit shown in Figure A9, the mesh current I1 is _____.
- a. 0.0155 A
- b. 0.0286 A
- c. 0.127 A
- d. 0.00861 A

33. In the circuit shown in Figure A9, the mesh current I2 is _____.
- a. 0.0297 A
- b. 0.372 A
- c. 0.218 A
- d. 0.0183 A

Figure A10



34. In the circuit shown in Figure A10, the mesh current I1 is _____.
- a. 4.41 mA
- b. 2.76 mA
- c. 8.23 mA
- d. 5.91 mA

35. In the circuit shown in Figure A10, the mesh current I2 is _____.
- a. 8.71 mA
- b. 1.23 mA

○ c. 5.56 mA
○ d. 2.42 mA

36. A series circuit has _____ path(s) for current flow.
○ a. two
○ b. one
○ c. multiple
○ d. no

37. A parallel circuit has _____ path(s) for current flow.
○ a. only one
○ b. only two
○ c. multiple
○ d. no

38. A resistor's power rating must be _____ than the amount of power being dissipated through it.
○ a. greater
○ b. less

39. Power dissipation in a resistor _____ as resistance increases.
○ a. increases
○ b. decreases

40. Voltage equals _____ times resistance.
○ a. voltage
○ b. resistance
○ c. power
○ d. current

41. The equation in the above problem is known as _____ Law.
○ a. Tesla's
○ b. Maxwell's
○ c. Ohm's
○ d. Faraday's

42. An ohm is defined as the electrical resistance between two points of a conductor when a constant potential difference of _____, applied to these points, produces in the conductor a current of 1 amp.
○ a. 0 volts
○ b. 1 volt
○ c. 1000 volts
○ d. 2 volts

43. In order to determine the current through a resistor, you must know the resistance as well as the _____ across the resistor.
○ a. voltage
○ b. capacitance
○ c. inductance
○ d. magnetic field strength

44. Power is measured in _____.
○ a. watts
○ b. ohms

○ c. volts
○ d. joules

45. In order to find the total resistance in a series circuit, you must _____ each resistor value.
○ a. subtract
○ b. multiply
○ c. add
○ d. divide