

Test on Ohm's law

Taking into account what you have learnt in the previous experiments answer the following questions. Choose which one of the following options is true for each sentence:

1. According to Ohm's law:

- a) The voltage drop in a resistor is directly proportional to the current that flows through it and to the resistor value
- b) The voltage drop is only proportional to the current value
- c) The voltage drop is only proportional to the resistance value
- d) The voltage drop in a resistance is inversely proportional to the current that flows through it and to the resistance value

2. According to Ohm's law:

- a) The current that flows through a resistor is directly proportional to the power supply voltage and to the resistor value
- b) The current that flows through a resistor is inversely proportional to the power supply voltage and to the resistance value
- c) The current that flows through a resistor is directly proportional to the power supply voltage and inversely proportional to the resistor value
- d) The current that flows through a resistor is separate

3. In a circuit with a single resistor of an unspecific value supplied by an unknown direct voltage:

- a) There is an entire voltage drop in the single resistor
- b) It is necessary to know the value R in order to determine the voltage drop
- c) It is necessary to know the value of the power supply voltage in order to determine the voltage drop
- d) It is necessary to know both values in order to determine the voltage drop

4. In a circuit with a single resistor of an unspecific value supplied by an unknown direct voltage:

- a) The total current flows through the single resistor
- b) It is necessary to know the value R in order to determine the current that flows through the resistor
- c) It is necessary to know the value of the power supply voltage in order to determine the current that flows through the resistor
- d) It is necessary to know both values in order to determine the current that flows through the resistor

5. In a circuit with two resistors of identical value supplied by an unknown direct voltage:

- a) We need to know the current in order to determine the amount of voltage drop there is in each resistor
- b) There is a voltage drop in each resistor that is equal to half the power supply voltage
- c) It is necessary to know the value of the power supply voltage in order to determine the voltage drop in each resistor
- d) It is necessary to know both values in order to determine the voltage drop in each resistor

6. In a circuit with two resistors of identical value supplied by an unknown direct voltage:

- a) The current that flows through each resistor is half of the total
- b) The current that flows through each resistor is identical
- c) It is necessary to know the value of the power supply voltage in order to ascertain the current that flows through the resistors
- d) The current is variable in each resistor

7. In a circuit with two resistors – one double the value of the other - supplied by an unknown direct voltage:

- a) We need to know the current in order to determine the amount of voltage drop there is in each resistor
- b) There is half the voltage drop in the small resistor
- c) There is a voltage drop equivalent to a third of the power supply voltage in the small resistor
- d) This cannot be determined

8. In a circuit with two resistors – one double the value of the other - supplied by an unknown direct voltage:

- a) There is a voltage drop equivalent to double that produced in the small resistor in the large resistor
- b) There is double the voltage drop in the small resistor
- c) There is a voltage drop equivalent to a third of the power supply voltage in the small resistor
- d) This cannot be determined

9. In a circuit with two series resistors, the following needs to occur in order for there to be a voltage drop 10 times greater than in the other in a resistor:

- a) The sum of both resistors must be 10
- b) The large resistor must be 9 times greater than the small one
- c) The small resistor must be 9 times greater than the large one
- d) The large resistor must be 10 times greater than the small one

10. If the power supply voltage is increased in order for it to be 10 times greater than the original one, and we want to maintain the current that flows through the single resistor, then:

- a) The single resistor in the circuit must be 10 times less
- b) The single resistor in the circuit must be 10 times greater
- c) The single resistor in the circuit may maintain its value
- d) This cannot be determined