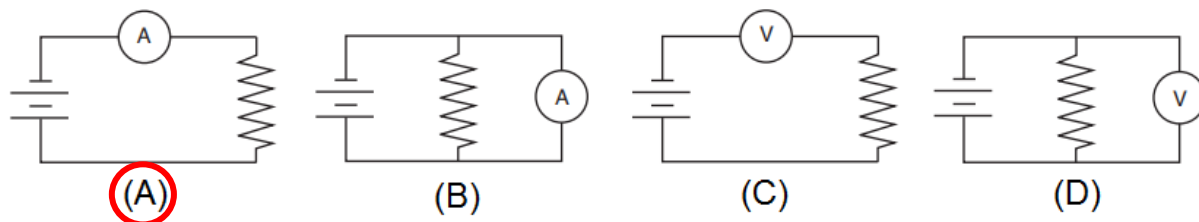


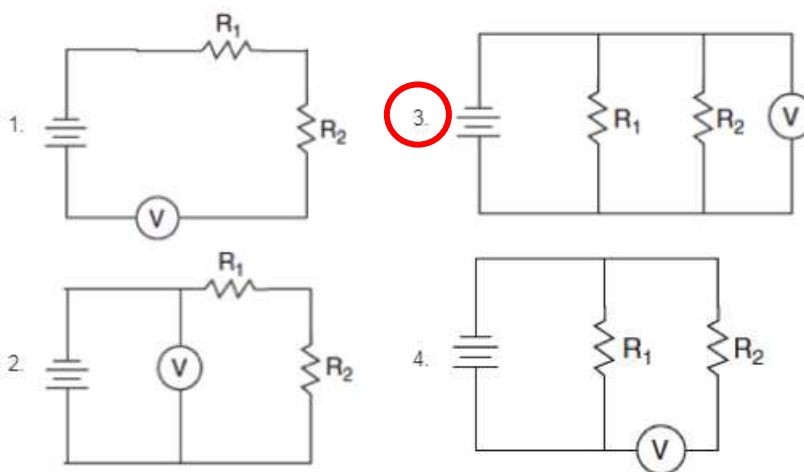
Circuit Diagrams

Directions: Use the appropriate Circuit Symbols on your Reference Tables to draw schematic diagrams of the circuits described. Solve the following problems using the GUESS method and proper significant figures. Be sure to show ALL work.

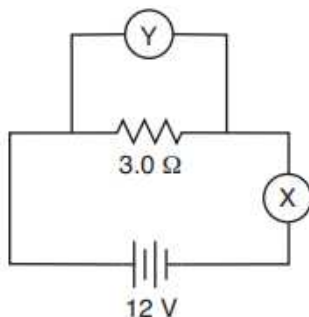
1. Which circuit diagram represents the correct way to measure the current in a resistor?



2. Which circuit diagram represents the correct way to measure the potential difference across a resistor?



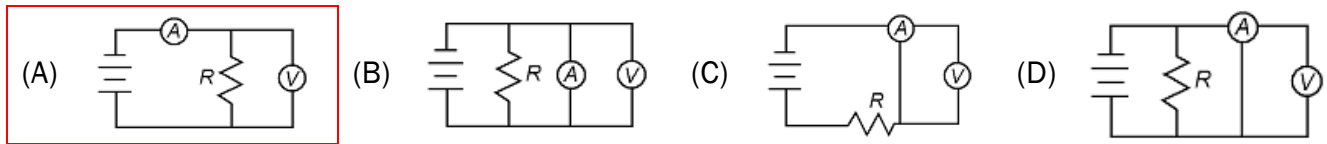
3. The diagram below represents a 3.0-ohm resistor connected to a 12-volt battery. Meters X and Y are correctly connected in the circuit.



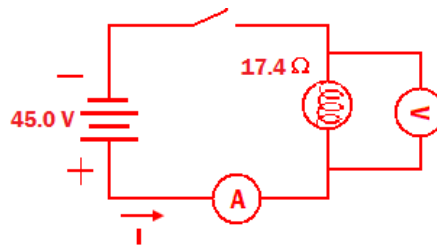
What are the readings on the meters?

- (A) X = 12 V and Y = 0.25 A
- (B) X = 12 V and Y = 4.0 A
- (C) X = 0.25 A and Y = 12 V
- (D) X = 4.0 A and Y = 12 V

4. Which circuit diagram below correctly shows the connection of ammeter A and voltmeter V to measure the current through and potential difference across resistor R?



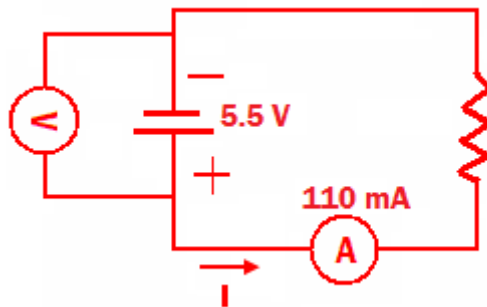
5. A circuit contains a 45.0 V battery, a switch, and a 17.4 Ω light bulb. There is also an ammeter measure the current flowing through the bulb and a voltmeter measure the potential difference across the bulb.
- Draw a circuit diagram using proper schematic symbols. Indicate the positive side of the battery and the direction of conventional current.



- Calculate the ammeter reading.

$$I = \frac{V}{R} = \frac{45.0\text{V}}{17.4\Omega} = 2.59\text{A}$$

6. A circuit contains a 5.5 V cell, a resistor, an ammeter reading 110 mA flowing through the resistor and a voltmeter measure the potential difference across the cell.
- Draw a circuit diagram using proper schematic symbols. Indicate the positive side of the cell the direction of conventional current.



- Calculate the size of the resistor.

$$R = \frac{V}{I} = \frac{5.5\text{V}}{0.11\text{A}} = 50\Omega$$

Answers in size order: 2.59, 50.