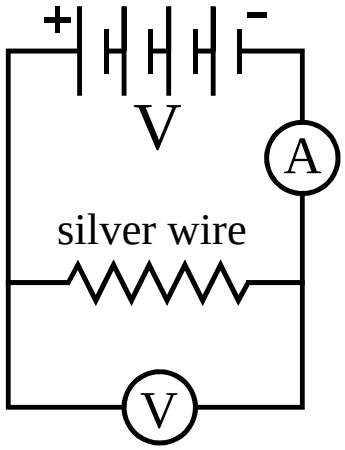
Name_____ Period _____ Date_____

Quiz 12:4D DC Circuits – Resistance of Wires [M-P]

A battery, which has an EMF of V = 4.50 Volts, is applied to a load which consists of a 180 cm piece of gauge 30 Silver wire, which has a resistivity of $\rho = 1.59 \times 10^{-8}\ \Omega$ m. As a result a current of I = 4.53 amperes is measured to flow through the wire.



1. What will be the resistance of this piece of wire? [3 pts]

2. What is the cross sectional area of this piece of wire? [3 pts]

3. What is the diameter of this piece of silver wire? [3 pts]

4. What will happen to the resistance of this piece of wire if the temperature of the wire is cooled from room temperature [~25^{o}C] to a temperature of -200^{o}C? Explain! [3 pts]

_____

_____

_____

_____

5. A second piece of silver wire has the same cross section as the first wire but has a length of 45.0 cm. What will be the resistance of this second piece of wire? [3 pts]