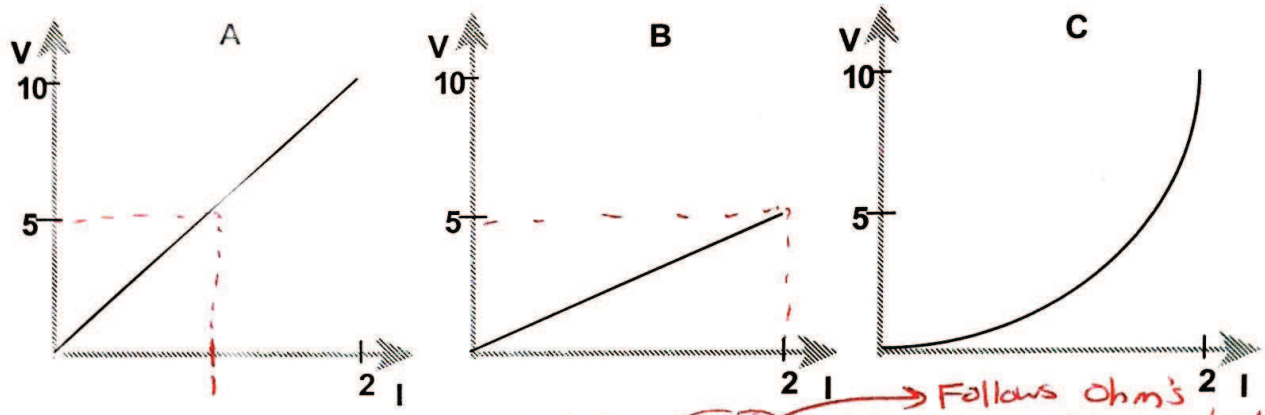
Circuit Questions

1. Han Solo is trying to fix the Millennium Falcon. Several circuits have burned out and others are behaving strangely. One particular circuit keeps burning out when the voltage is increased above 10 volts. By testing several resistors, he collects the following data:



a. Which of the three resistors is behaving in an "ohmic" way? Explain.

→ Follows Ohm's Law, which is $V = IR$

A + B, because they are linear.

b. What potential difference exists across resistor A when 1.0 amps flow through it?

From graph A, 1 amp → 5 V

c. What is the resistance (in ohms) of resistor B?

Resistance is slope, so $R = \frac{V}{I} = \frac{5-0}{2-0}$

$R = 2.5\ \Omega$