Quiz 20.1C

A 125 μF capacitor and an unknown resistor are connected in series with a 78.0 Volt power source. At t = 0.00 s, a switch a closed to complete the circuit, and the capacitor begins to charge. A student determines that the voltage drop across the capacitor after 1.33 seconds is 38.0 Volts.

a) What is the charge on the capacitor at this time?
b) What is the time constant of this circuit?
c) What is the resistance of the resistor in this circuit?
d) At t = 1.33 seconds, what is the current in the circuit?