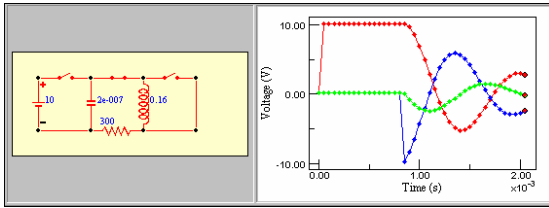# Worksheet for Exploration 31.8: Damped RLC

Assume ideal components. The graph shows the voltage across the capacitor **(red)**, the voltage across the inductor **(blue)**, and the voltage across the resistor **(green)** as functions of time **(voltage is given in volts)**.

Change the switches as you explore the behavior of this circuit. Restart.

a. Pick a specific time, measure the voltages on the graph, and verify that Kirchhoff's law holds when the switch is open and when the switch is closed.

Time	Capacitor voltage	Resistor voltage	Inductor voltage	ΔV (around the circuit loop containing circuit elements)

b. What determines the time between peaks of the voltage when you close the switch?

c. Change the value of the variable resistor. What happens to the time for the oscillations if the resistor is large? When the resistor is small? Explain.

R	Time for oscillations to damp out