1. Find the current, $i_L$, through the inductor in the circuit below for $t > 0$ if $i_L(t = 0) = 5$ A.

$$L = 5 \, \mu H$$

$$R = 2 \, \Omega$$

2. Find the voltage, $v_C$, across the capacitor in the circuit below for $t > 0$ if $v_C(t = 0) = 5$ V.

$$C = 5 \, \mu F$$

$$R = 2 \, \Omega$$

3. After being open for a long time, the switch closes at $t = 0$.

$$v_g = 4V$$

$$C = 1 \, \mu F$$

$$R = 300 \, k\Omega$$

$$v_C(t=0^+) = 12V$$

a) Find an expression for $v_C(t)$ for $t \geq 0$.

b) Find the energy stored in the capacitor at time $t = 10$ ms.
4. 

\[ v_g = 4 \text{V} \]

\[ L = 1 \mu\text{H} \]

\[ i_L(t=0^+) = 12 \text{A} \]

\[ t = 0 \]

\[ R = 300 \text{k}\Omega \]

a) Find an expression for \( i_L(t) \) for \( t \geq 0 \). Note: Assume the initial current in the \( L \) is created by circuitry not shown in the diagram.

b) Find the energy stored in the inductor at time \( t = 10 \text{ ms} \).

5. After being zero for a long time, the value of \( v_g(t) \) changes to 9 V at \( t = 0 \) (and remains at 9 V as time increases to infinity).

\[ v_g(t) \]

\[ R = 2 \text{k}\Omega \]

\[ C = 500 \text{pF} \]

\[ v_o \]

a) Find an expression for \( v_o(t) \) for \( t > 0 \).

b) Find the current, \( i_R \), in \( R \) as a function of time.