A 50-\(\mu\)F capacitor has energy \(\omega(t) = 10 \cos^2 377t\) J and consider a positive \(v(t)\). Determine the current through the capacitor.

The current through the capacitor is \(\boxed{\sin(377t)}\) A.
The voltage across a 4-\(\mu\)F capacitor is shown in the given figure.

Find the currents for the ranges given below.

The currents at the given ranges are as follows:
For \(0 < t < 2 \text{ ms}\), \(i_C(t) = \underline{\hspace{2cm}} \text{ mA}\)
For \(2 \text{ ms} < t < 6 \text{ ms}\), \(i_C(t) = \underline{\hspace{2cm}} \text{ mA}\)
For \(6 \text{ ms} < t < 8 \text{ ms}\), \(i_C(t) = \underline{\hspace{2cm}} \text{ mA}\)
A capacitor has the terminal voltage
\[ v = \begin{cases} 
50 \text{ V} & t \leq 0 \\
A e^{-100t} + B e^{-600t} & t \geq 0 
\end{cases} \]

The capacitor has an initial current of 2 A.

Find the constants \( A \) and \( B \) if the capacitance is \( C = 4 \text{ mF} \).

The constants \( A \) and \( B \) are \underline{ } and \underline{ }, respectively.
A capacitor has the terminal voltage
\[ v = \begin{cases} 
50 \text{ V} & t \leq 0 \\
A e^{-100t} + B e^{-600t} \text{ V} & t \geq 0 
\end{cases} \]
The capacitor has an initial current of 2 A.

Find the capacitor current for \( t > 0 \), where the capacitance \( C = 4 \text{ mF} \).

The capacitor current is \( i = \underline{alem} e^{-100t} + \underline{blem} e^{-600t} \text{ A} \).
A 4-mF capacitor has the current waveform shown in the given figure. Assume that \( v(0) = 10 \) V.

Find the value of voltage for \( 6 \text{ s} < t < 8 \text{ s} \).

The value of voltage \( v(t) = \left[ (\ ) t - (\ ) \right] \) V.
Find the voltage across the capacitors in the given circuit under dc conditions, where \( R_1 = 69 \, \Omega \) and \( R_2 = 15 \, \Omega \).

The voltage across the capacitors are \( v_1 = \) \[ \text{V} \] and \( v_2 = \) \[ \text{V} \].
Determine the equivalent capacitance for the given circuit, where $C = 8 \text{ F}$. 

The equivalent capacitance is $\underline{8} \text{ F}$. 
Find the equivalent capacitance in the given circuit if all capacitors are 16 \( \mu F \).

The equivalent capacitance is \( C_{eq} \) \( \mu F \).
In the given circuit, assume that the capacitors were initially uncharged and that the current source has been connected to the circuit long enough for all the capacitors to reach steady-state (no current flowing through the capacitors). Also assume that $R = 23 \text{k}\Omega$.

Determine the voltage across each capacitor.

The voltage across each capacitor is as follows:

$v_{10} =$ V
$v_{30} =$ V
$v_{18} =$ V
$v_{30} =$ V
$v_{20} =$ V
In the given circuit, assume that the capacitors were initially uncharged and that the current source has been connected to the circuit long enough for all the capacitors to reach steady-state (no current flowing through the capacitors). Also assume that $R = 23 \, \text{k}\Omega$.

Determine the energy stored in each capacitor.

The energy stored in each capacitor is as follows:

$w_{10} =$ __________ mJ

$w_{30} =$ __________ mJ

$w_{18} =$ __________ mJ

$w_{30} =$ __________ mJ

$w_{20} =$ __________ mJ
The voltage across a 75-mH inductor is given by \( v(t) = [5e^{-2t} + 2t + 4] \) V for \( t > 0 \). Determine the current \( i(t) \) through the inductor. Assume that \( i(0) = 0 \) A.

The current through the inductor is \( i(t) = [\ldots \ldots \ldots e^{-2t} + \ldots \ldots \ldots t^2 + \ldots \ldots \ldots \ldots + \ldots \ldots \ldots \ldots] \) A.
If the voltage waveform in the given figure is applied to a 26-mH inductor, find the inductor current $i(t)$ for $0 < t < 2$ s. Assume $i(0) = 0$.

The inductor current for $0 < t < 1$ s is $i(t) = \boxed{\text{expression}} t^2 \text{ A}$.

The inductor current for $1 < t < 2$ s is $i(t) = \boxed{\text{expression}} - \text{expression} t + \boxed{\text{expression}} t^2 \text{ A}$.
Consider the given circuit under dc conditions, where $R = 3 \ \Omega$.

Find the voltage $v_C$.

The voltage $v_C$ is \[ \text{V}. \]
Consider the given circuit under dc conditions, where $R = 3 \, \Omega$.

Find the energy stored in the inductor.

The energy stored in the inductor is $\square \, J$. 
Consider $L = 15 \text{ mH}$ in the given circuit and calculate the value of $R$ that will make the energy stored in the capacitor the same as that stored in the inductor under dc conditions.

The value of $R$ that will make the energy stored in the capacitor the same as that stored in the inductor under dc conditions is ________ $\text{Ω}$. 

\[
\begin{array}{c}
\text{5 A} \\
\hline
2 \Omega \\
160 \mu \text{F} \\
\end{array}
\]

\[R\]
Determine the equivalent inductance $L_{eq}$ at terminals $a-b$ of the given circuit, where $L = 13 \text{ mH}$.

The equivalent inductance $L_{eq}$ at terminals $a-b$ of the circuit is $\boxed{\phantom{0}} \text{ mH}$.
Find the equivalent inductance $L_{eq}$ in the given circuit, where $L = 5 \, \text{H}$ and $L_1 = 61 \, \text{H}$.

The equivalent inductance $L_{eq}$ in the circuit is $\_ \_ \_ \_ \_ \, \text{H}$.
Determine the equivalent inductance $L_{eq}$ that may be used to represent the inductive network of the given figure at the terminals.

The equivalent inductance $L_{eq}$ used to represent the inductive network is $\_\_\_\_\_\_$ H.
The switch in the given figure has been in position A for a long time. At $t = 0$, the switch moves from position A to B. The switch is a make-before-break type so that there is no interruption in the inductor current. Consider the value of current $I = 4 \, \text{A}$.

Find the current $i(t)$ for $t > 0$.

The current $i(t)$ is $(-\quad \text{e}^{-\quad \text{A}})$. 
The switch in the given figure has been in position A for a long time. At \( t = 0 \), the switch moves from position A to B. The switch is a make-before-break type so that there is no interruption in the inductor current. Consider the value of current \( I = 4 \text{ A} \).

Find the voltage \( v(t) \) long after the switch is in position B.

The voltage \( v(t) \) long after the switch is in position B is \( \text{______} \text{ V} \).