In the circuit in the figure, let $i_s = 50e^{-2t}$ mA and $v_1(0) = 50$ V, $v_2(0) = 20$ V.

Determine: (a) $v_1(t)$ and $v_2(t)$, (b) the energy in each capacitor at $t = 0.5$ s. Round all your answers to two decimal places.

$v_1 = e^{-2t} + V$

$v_2 = e^{-2t} + V$

$\omega_{12\mu F} =$ J

$\omega_{10\mu F} =$ J

$\omega_{60\mu F} =$ J
Find the equivalent inductance of the circuit in the figure. Round your intermediate calculations and final answers to two decimal places.

\[ L_{eq} = \text{mH} \]
Determine $L_{eq}$ that may be used to represent the inductive network in the figure below at the terminals. (Round your answer to two decimal places if necessary.)

$$L_{eq} =$$

### Answer

$5.28$ H
Your laboratory has available a large number of \(20\,\mu F\) capacitors rated at 250 V. To design a capacitor bank of \(80\,\mu F\) rated at 500 V, how many \(20\,\mu F\) capacitors are needed and how would you connect them?

Answer: \(1\) groups in parallel with each group made up of \(\) capacitors in \((\) select\()\) units.\(\)
Find the voltage across the capacitors in the circuit shown under dc condition.

\[ v_1 = \quad \text{V} \]

\[ v_2 = \quad \text{V} \]