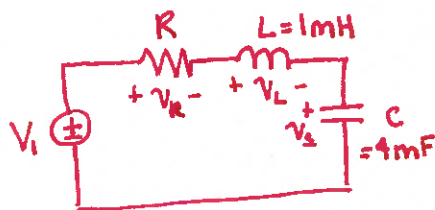
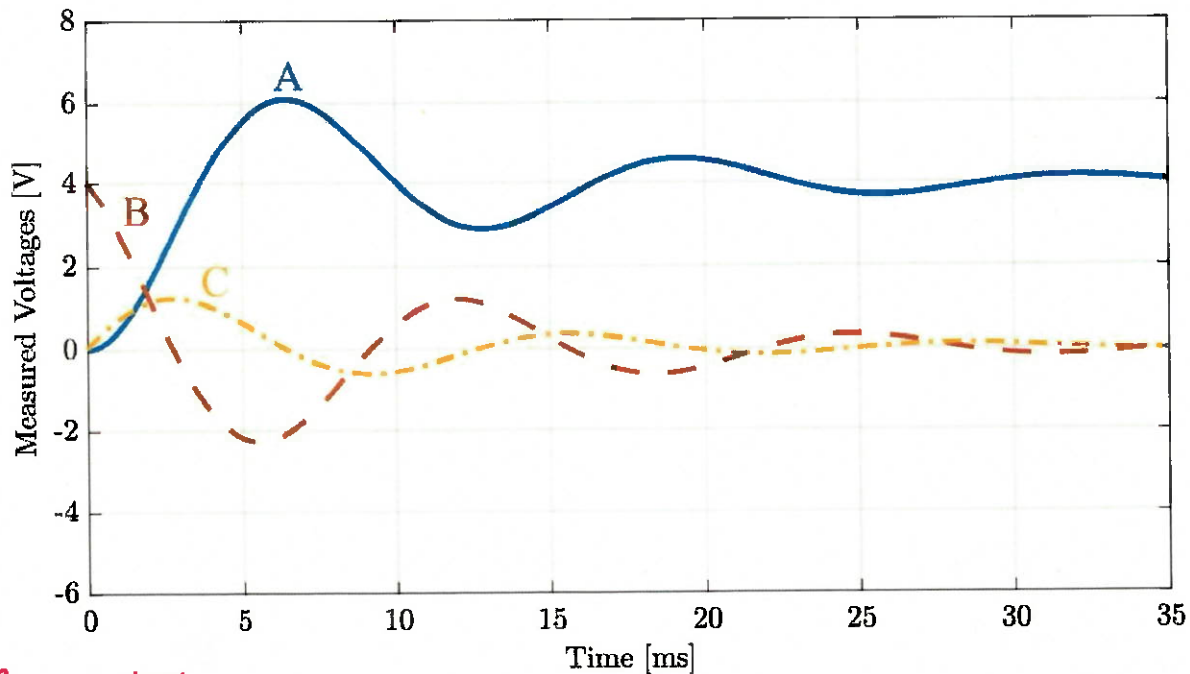


Name: SOLUTIONS

Kerberos Username: _____



$$v_R + v_L + v_C = V_i$$

looking at $t \rightarrow \infty$: $V_i = 4V$

A: $v_C(t)$, voltage cannot instantaneously change, $v_C \rightarrow V_i$ @ $t \rightarrow \infty$

B: $v_L(t)$, as $t \rightarrow 0$, voltage $\rightarrow 0V$

C: $v_R(t)$, current cannot instantaneously change so iR also cannot

$$Q \approx 2.5 = \frac{L}{R} \omega_0$$

$$\omega_0 = \frac{1}{\sqrt{1 \times 10^{-3} \times 4 \times 10^{-3}}} = 500 \text{ rad/s}$$

$$2.5 = \frac{1 \times 10^{-3}}{R} (500)$$

$$R = 0.2 \Omega$$

$$\text{OR } \omega_d \approx \frac{2\pi}{13 \times 10^{-3}} = 483 \text{ rad/s}$$

$$\alpha^2 = 500^2 - 483^2 \approx \alpha \approx 129 = \frac{R}{2L}$$

$$R = (129)(1 \times 10^{-3})(2) \approx 0.2 \Omega$$