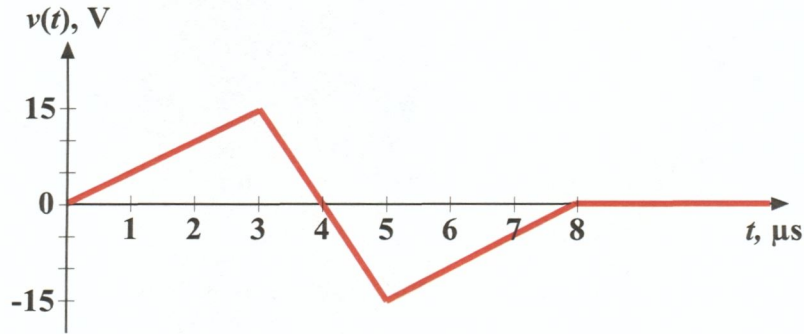


EE 2240  
**Problem #05**

Accurately sketch the waveform for the current through a  $6 \mu\text{F}$  capacitor when the capacitor voltage is as shown.



$$i(t) = C \frac{dv}{dt}$$

$$\frac{dv}{dt} = \begin{cases} \frac{15\text{V}}{3\mu\text{s}} & : 0 < t < 3\mu\text{s} \\ -\frac{30\text{V}}{2\mu\text{s}} & : 3\mu\text{s} < t < 5\mu\text{s} \\ \frac{15\text{V}}{3\mu\text{s}} & : 5\mu\text{s} < t < 8\mu\text{s} \\ 0 & : 8\mu\text{s} < t \end{cases}, \quad C \frac{dv}{dt} = \begin{cases} 30\text{A} & : 0 < t < 3\mu\text{s} \\ -90\text{A} & : 3\mu\text{s} < t < 5\mu\text{s} \\ 30\text{A} & : 5\mu\text{s} < t < 8\mu\text{s} \\ 0 & : 8\mu\text{s} < t \end{cases}$$

