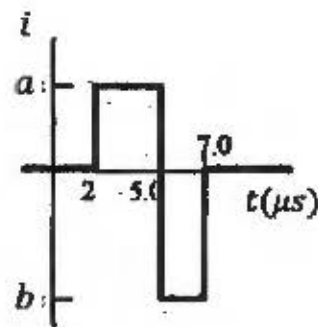
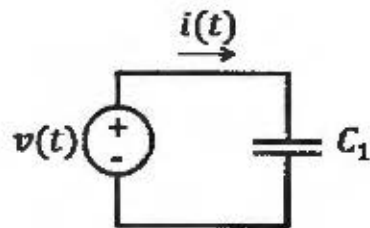
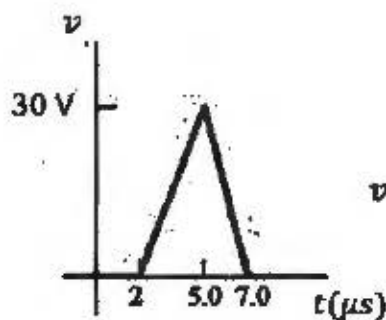


Given the two plots of the voltage and current of the capacitor.
Find the values of a and b labeled on the graph.

$$C_1 = 1 \text{ nF}$$



$$i = C \frac{dv}{dt}$$

⊗ For $2 \mu s < t < 5 \mu s$, $\frac{dv}{dt} = \frac{\Delta v}{\Delta t} = \frac{30 \text{ V}}{3 \cdot 10^{-6} \text{ s}}$

$$i = 10^{-9} \cdot \frac{30}{3 \cdot 10^{-6}} = 10 \cdot 10^{-3} = 0.01$$

$$a = 0.01 \text{ A}$$

⊗ For $5 \mu s < t < 7 \mu s$, $\frac{dv}{dt} = \frac{\Delta v}{\Delta t} = \frac{-30 \text{ V}}{2 \cdot 10^{-6} \text{ s}}$

$$i = 10^{-9} \cdot \frac{(-30)}{2 \cdot 10^{-6}} = -15 \cdot 10^{-3} = -0.015$$

$$b = -0.015 \text{ A}$$