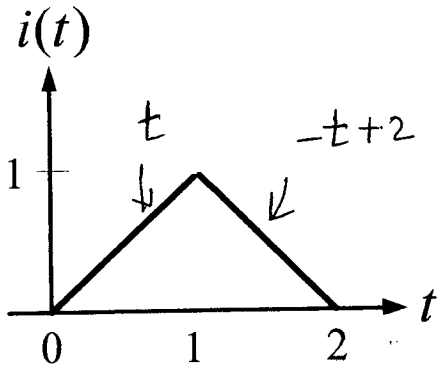
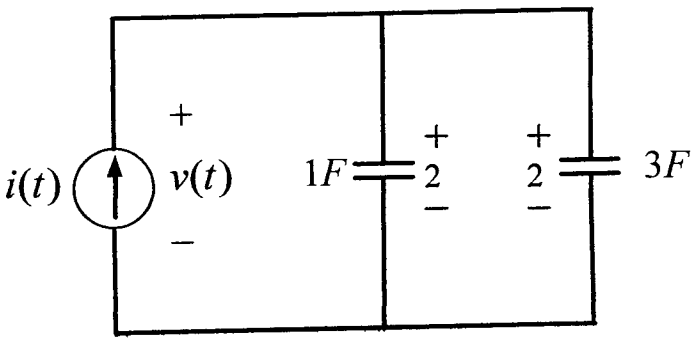
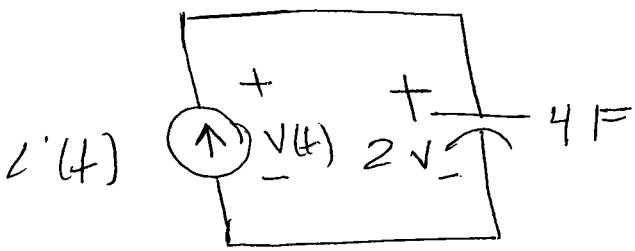
EE 202-02-Winter 2013(132)
QZ4

Sec	Ser	ID	Name	KEY





For the circuit shown above, the capacitors initially have 2 V .
If the current applied is as shown , write expression for the voltage $v(t)$?



$$v(t) = \frac{1}{C}\int_0^t i(\tau)d\tau + v(0)$$

$0 \le t \le 1 \Rightarrow v(t) = \frac{1}{4}\int_0^t \tau\, d\tau + 2 = \frac{t^2}{8} + 2$

$1 \le t \le 2 \Rightarrow v(t) = \frac{1}{4}\int_1^t (-\tau + 2) + v(1)$

$= -\frac{t^2}{8} + \frac{t}{2} + \frac{7}{4}$

$t > 2 \Rightarrow v(t) = \frac{1}{4}\int_2^t 0\, d\tau + v(2) = \frac{9}{4}$