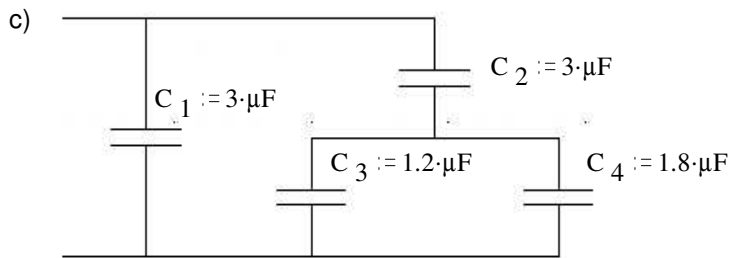
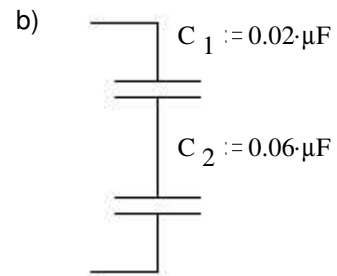
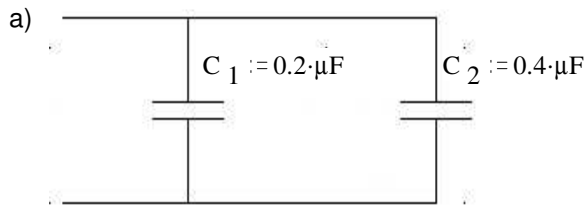
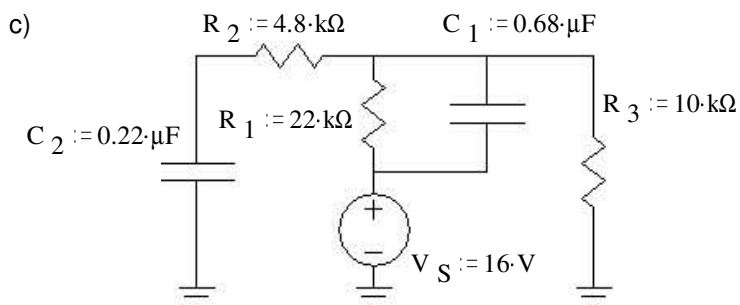
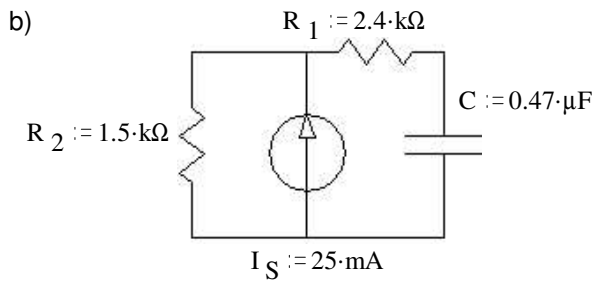
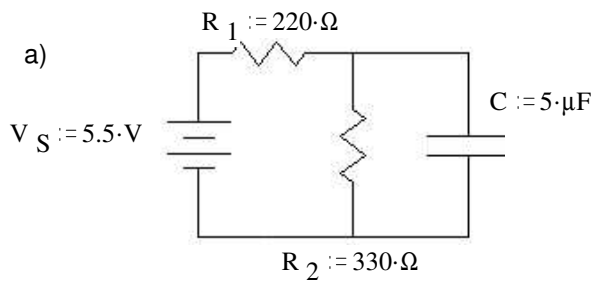


1) Find C_{eq} in each case

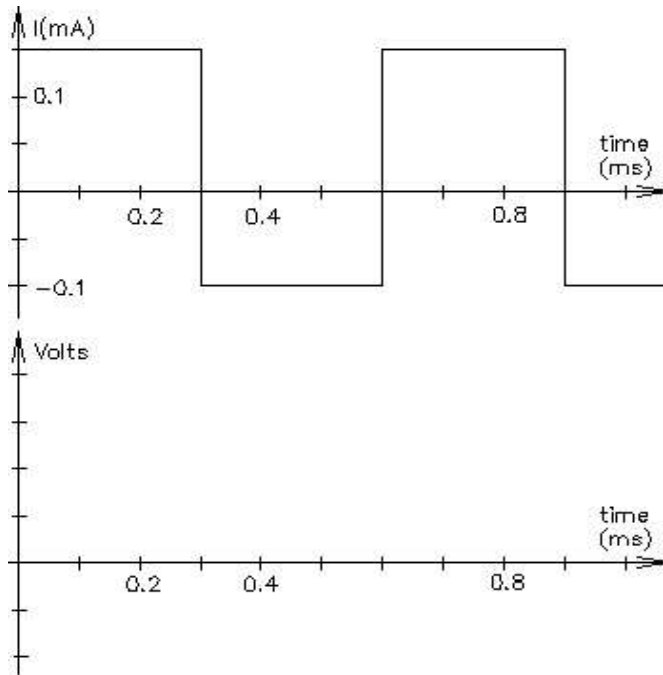


2. Each of the following circuits have been connected as shown for a long time. Find the voltage across each capacitor and the energy stored in each.

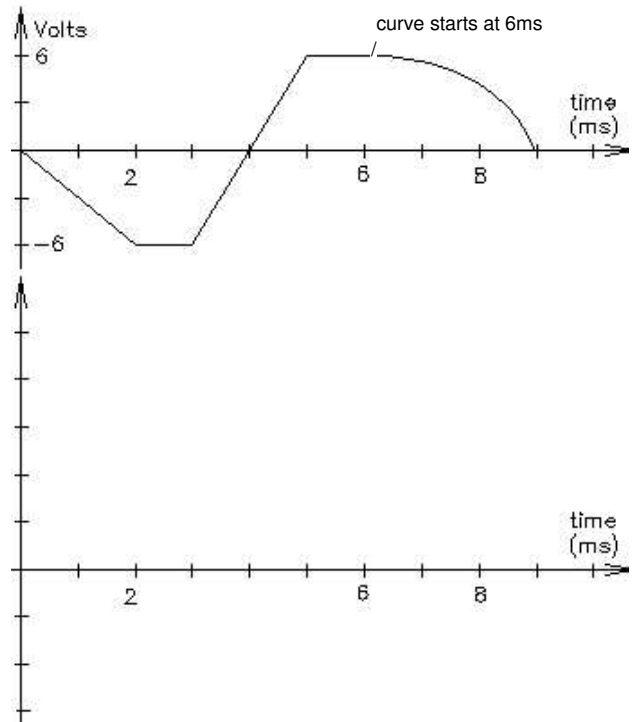


Name: _____ You may want to hand in this page with answers to problems 3 & 4.

3. The current waveform shown below flows through a $0.025 \mu\text{F}$ capacitor. Make an accurate drawing of the voltage across it. Label your graph. Assume the initial voltage across the capacitor is 0 V .



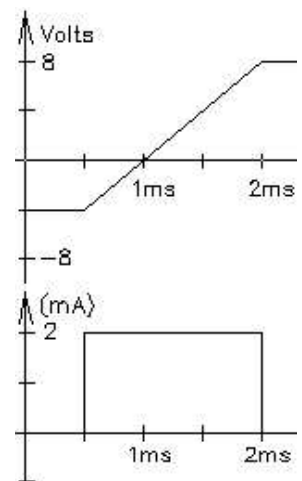
4. The voltage across a $2 \mu\text{F}$ capacitor is shown below. Make an accurate drawing of the capacitor current. Label your graph.



5. The voltage across a $0.68 \mu\text{F}$ capacitor is $v_c = 6 \cdot \text{V} \cdot \cos\left(200 \cdot t + \frac{\pi}{2}\right)$ find i_c .

6. The current through a $0.0047 \mu\text{F}$ capacitor is $i_c = 18 \cdot \mu\text{A} \cdot \cos\left(628 \cdot t - \frac{\pi}{4}\right)$ find v_c .

7. A capacitor voltage and current are shown at right. What value is the capacitor?



Answers

1. a) $0.6 \cdot \mu\text{F}$ b) $0.015 \cdot \mu\text{F}$ c) $4.5 \cdot \mu\text{F}$

2. a) 3.3 V $0.027 \cdot \text{mJ}$ b) $37.5 \cdot \text{V}$ $0.33 \cdot \text{mJ}$ c) $11 \cdot \text{V}$ $0.0411 \cdot \text{mJ}$ $5 \cdot \text{V}$ $2.75 \cdot \mu\text{J}$

3. $1.8 \cdot \text{V}$ $0.6 \cdot \text{V}$ $2.4 \cdot \text{V}$ 4. $-6 \cdot \text{mA}$ $12 \cdot \text{mA}$ ramp to -8 mA

5. $i_c = 0.816 \cdot \text{mA} \cdot \cos(200 \cdot t + \pi)$ 6. $v_c = 6.1 \cdot \text{V} \cdot \cos\left(628 \cdot t - \frac{3 \cdot \pi}{4}\right)$ 7. $0.25 \cdot \mu\text{F}$